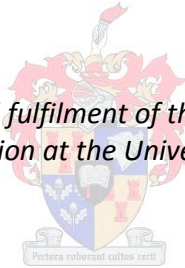


An investigation of the factors influencing food choices of mothers of children attending primary schools in the Metro North Education District of Western Cape Province, South Africa.

by
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*Thesis presented in partial fulfilment of the requirements for the degree
Master of Nutrition at the University of Stellenbosch*



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December 2015

DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously submitted it in its entirety or in part for obtaining any qualification.

Yolande Smit

Date: 8 December 2015

ABSTRACT

An investigation of the factors influencing food choices of mothers of children attending primary schools in the Metro North Education District of Western Cape Province, South Africa.

Introduction: Adequate nutrition during childhood is essential for optimal growth, development, health and well-being. The growing epidemic of childhood obesity is a major public health problem. In South Africa, almost one fifth of children under the age of twelve are overweight or obese. Childhood obesity, a risk factor for non-communicable diseases, often leads to adult obesity. Younger children are dependent on their parents for the food they have access to. Unhealthy food choices made by mothers can impact negatively on child health and may lead to establishing unhealthy eating behaviour that persists into adulthood. Making food choices is a complex process influenced by many factors.

Objectives: To determine 1) the factors that influence food choices of mothers with primary school children 2) the knowledge, attitude and practices of mothers regarding healthy and unhealthy food 3) the impact that employment status and socio-economic backgrounds have on these factors and 4) to investigate barriers to purchasing healthy food.

Design: An observational, cross sectional, descriptive study with an analytical component.

Methods: Mothers (n=476) were recruited from three randomly selected schools, each representing a different national quintile. Self-administered questionnaires were used to collect data about the demographics, knowledge, attitude and practices of mothers. Six focus group discussions were conducted with working and non-working mothers (n=37) from the three schools to investigate barriers to healthy eating.

Results: The mean nutrition knowledge score for the group was 68.6%. Nutrition knowledge was significantly ($p<0.05$) lower in mothers from the lower quintile school (64%). Mothers from the higher quintile school were more concerned with healthy eating and more aware of the role they play in shaping a child's eating habits compared to mothers from the lower quintile school ($p<0.05$). Mothers from the lower quintile school practiced unhealthier food preparation methods such as using oil and sugar frequently in meal preparation ($p<0.05$). The most important factors that influenced food purchases for the whole group were cost (60%), nutritional value (37%) and a lack of time (29%). Time constraints resulted in working mothers buying more take aways and convenient foods ($p<0.05$) compared to non-working mothers. Barriers identified during the focus group discussion were employment status, family preference, the school environment and mixed messages from the media. Magazines and health professionals were identified as the sources most often used by all participants for nutrition information (62% and 44%).

Conclusion: Nutrition education should remain a priority, especially among lower socio-economic groups. Nutrition education campaigns should not only focus on nutrition knowledge but should

include the long term negative impact that mother's unhealthy food choices have on their children. Policy makers should monitor the gap between rising prices of healthy food and the promotion of unhealthy food. The food industry should act on their responsibility towards consumer health. A need for healthier convenience foods exists in order to support working mothers in making healthier food choices. Mothers need support with practical application of their existing nutrition knowledge and nutrition related health messages.

OPSOMMING

‘n Onderzoek na die faktore wat die voedselkeuses beïnvloed van moeders met kinders wat laerskole bywoon in die Metro-Noord Onderwyssdistrik van die Wes-Kaap Provinsie, Suid-Afrika.

Inleiding: Voldoende voeding tydens die kinderjare is essensieel vir optimale groei, ontwikkeling, gesondheid en welstand. Die toenemend groeiende epidemie van vetsugtigheid onder kinders is ‘n massiewe publieke gesondheidsprobleem. Ongeveer een vyfde van Suid-Afrikaanse kinders jonger as twaalf jaar is oorgewig of vetsugtig. Kindervetsugtigheid, ‘n risiko vir nie-oordraagbare siektes, lei meesal na volwasse vetsugtigheid. Jong kinders is afhanklik van hul ouers vir die voedsel waartoe hulle toegang het. Ongesonde voedselkeuses deur moeders kan ‘n negatiewe impak hê op kindergesondheid wat daartoe kan lei dat ongesonde eetgewoontes gevestig word, wat volgehou word as volwassene. Die proses om voedselkeuses uit te oefen is kompleks en word deur verskeie faktore beïnvloed.

Doelwitte: Om te bepaal 1) wat die faktore is wat die voedselkeuses van moeders met laerskoolkinders beïnvloed 2) wat die kennis, houding en gewoontes van moeders aangaande gesonde en ongesonde voedsel is 3) wat die impak van werkstatus en sosio-ekonomiese agtergrond is op die faktore en 4) om hindernisse te ondersoek wat die aankoop van gesonde voedsel beïnvloed.

Studieontwerp: ‘n Beskrywende, dwarsdeursnitstudie met ‘n analitiese komponent.

Metode: Moeders (n=476) by drie ewekansig geselekteerde skole, wat elkeen ‘n verskillende nasionale kwintiel verteenwoordig was gekies. Self-geadministreerde vraelyste was gebruik om data in te samel aangaande die demografie, kennis, houding en gewoontes van moeders. Ses fokusgroepbesprekings was gehou met werkende en nie-werkende moeders (n=37) van die drie skole om hindernisse t.o.v. gesonde eetgewoontes te ondersoek.

Resultate: Die gemiddelde voedingkennis van die hele groep was 68.6%. Voedingkennis was beduidend ($p<0.05$) laer in die laer kwintiel skool (64%). Moeders by die hoër kwintiel skool was meer besorg daaroor om gesond te eet en meer bewus van hul rol in die vorming van ‘n kind se eetgewoontes, in vergelyking met moeders van die laer kwintiel skool ($p<0.05$). Moeders by die laer kwintiel skool het meer ongesonde voedselvoorbereidingsmetodes gebruik, byvoorbeeld die gereelde gebruik van olie en suiker tydens maaltyd voorbereiding ($p<0.05$). Die belangrikste faktore wat voedselaankope beïnvloed het vir die hele groep was prys (60%), nutrisionele voedingswaarde (37%) en gebrek aan tyd (29%). Werkende moeders se gebrek aan tyd het gelei tot meer gereelde aankope van wegneemetes en geriefsvoedsel ($p<0.05$) in vergelyking met nie-werkende moeders. Tydens die fokusgroepbesprekings was werkstatus, familie voorkeure, die skool omgewing en gemengde boodskappe vanaf die media as hindernisse geïdentifiseer. Tydskrifte en gesondheidspersoneel was

deur al die deelnemers geïdentifiseer as die mees algemene bron van voedingsinligting (62% en 44%).

Gevolgtrekking: Voedingsvoorligting moet voorkeur geniet, veral by vroue van laer sosio-ekonomiese groepe. Voedingsopvoedingveldtogte moet nie net fokus op voedingkennis nie. Dit moet die langtermyn negatiewe impak en gevolge van ongesonde voedselkeuses wat moeders maak en die impak daarvan op die gesondheid van hul kinders, insluit. Beleidmakers moet die gaping tussen stygende pryse van gesonde voedsel en die bemaking van ongesonde voedsel monitor. Die voedselindustrie moet hul verantwoordelikheid teenoor verbruikersgesondheid ernstig opneem. Daar is 'n behoefte aan gesonder geriefsvoedsel om werkende moeders te ondersteun om gesonder voedsel opsies te kies. Moeders het ondersteuning nodig met die praktiese toepassing van hul bestaande voedingkennis en voedingsverwante media boodskappe.

ACKNOWLEDGEMENTS

A special word of thanks and appreciation to the following people without whom the completion of this thesis would not have been possible.

- My supervisor, Mrs. Nelene Koen, for her expert knowledge, guidance, endless patience and continuous encouragement.
- My co-supervisor, Dr. Suna Kassier, for her expert knowledge, guidance and continuous encouragement.
- My statistician, Prof. Daan Nel, for his time, effort, support and patience in explaining basic statistical concepts to me.
- The school principals, who gave permission to conduct this study, use their facility and showed so much enthusiasm towards this study.
- All the mothers who participated in this study, taking time to complete the questionnaires and be part of the focus group discussions.
- My colleagues at the Division of Human Nutrition, Faculty of Medicine and Health Sciences, Stellenbosch University, for their continuous support and interest in my progress while working on my thesis.
- Future Life and Lucky Star for their contribution towards the prize for the lucky draw.
- My husband, Wiehahn, and children, Christoff and Anri, for their love, understanding and support in allowing me the time to complete my studies.
- My parents, Anna and André Lategan, my sister, Nadine Kemp and brother, Dr. Werner Lategan, for always being interested in my progress and always being proud of me.
- My mother-in-law, Sophia Smit, for her support in so many ways.
- All my friends and other family members for their interest and encouragement.
- My Heavenly Father who gave me the courage, energy and motivation to complete this thesis.

CONTRIBUTION BY PRINCIPAL RESEARCHER AND FELLOW RESEARCHERS

The principal researcher (Yolande Smit) developed the idea of the protocol. The principal researcher planned the study, undertook data collection (without the assistance of a research assistant), captured the data for analyses, analysed the data with the assistance of a statistician, interpreted the data and drafted the thesis. Mrs. Nelene Koen and Dr. Suna Kassier (supervisors) provided input at all stages and revised the protocol and thesis.

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LIST OF ACRONYMS AND ABBREVIATIONS

BMI	Body Mass Index
DOH	Department of Health
ED	Energy Density
HFSS	High Fat, Sugar , Salt
HREC	Health Research Ethics Committee
IOTF	International Obesity Task Force
NCD	Non-communicable diseases
NFCS	National Food Consumption Survey
SAFBDG	South African Food Based Dietary Guidelines
SANHANES	South African National Health and Nutrition Examination Survey
SSB	Sugar sweetened beverages
UK	United Kingdom
WCED	Western Cape Education Department
WHO	World Health Organisation

LIST OF DEFINITIONS

Attitude	A settled way of thinking. ¹
Practice	The actual application or use of an idea, belief or method, as opposed to theories relating to it. ¹
National quintiles	The five groups used to divide all South African public schools into, for the purpose of allocation of financial resources. Quintile one being the poorest quintile and quintile five the “least poor”. ²
Healthy food	Items with a high nutrient density, that are high in fiber, low in saturated fat, low in sodium and contain no added sugar such as fruit, vegetables, nuts and brown bread. ^{3,4}
South African Food Based Dietary Guidelines (SAFBDG)	Short, positive, science-based dietary recommendations that aims to inform the consumers on how to make correct food and beverage choices and optimize their diets, while simultaneously helps to protect against the development of NCDs. ⁵

Chapter 1

LITERATURE REVIEW

1.1 INTRODUCTION

The health and nutritional status of young children under five serves as an important indicator of the development and social upliftment within communities.⁶ South Africa matches the typical profile of developing countries in their final stage of nutrition transition with moderate levels of underweight in children and men, low levels of underweight in women, high levels of overweight and obesity in women as well as a high intake of energy-dense foods and beverages.⁶ South Africa also displays the classic signs of a population that has a high prevalence of non-communicable diseases (NCDs) such as overweight and obesity.⁶ The World Health Organization (WHO) cautions against the escalating global obesity epidemic in both developed and developing countries.⁷ This pandemic is not only affecting middle age adults but also younger age groups.⁷ The WHO reported that 42 million children under the age of five were overweight in 2010.⁸ A secondary analysis of the anthropometric data from the National Food Consumption Survey (NFCS) conducted in 1999, found that 30% of South African children from one to nine years of age are overweight and obese.⁹ More recently the South African National Health and Nutrition Examination Survey (SANHANES-1) reported a prevalence of overweight and obesity in children aged 2 – 14 of 16.5% and 7.1% in girls and 11.5% and 4.7% in boys.¹⁰

The Birth to Twenty (BT20) study, which followed-up black Sowetan children from birth to twenty years of age, showed an increased risk for overweight in black female children. At age nine the prevalence of overweight in girls was 10% and at age thirteen 17%.¹¹

Determinants of overweight and obesity in children include familial, cultural, social, economic and environmental factors that can promote unhealthy eating patterns.¹² The American Dietetic Association recommends a three level approach to prevent obesity: i) health promotion, ii) reduction of risk factors and iii) the treatment and rehabilitation of obese people. Parents can potentially play a role in all three of these approaches.¹³ The role that parents play in the prevention as well as the development of childhood overweight should be investigated to understand more about how parents affect childrens' development of food related behaviour.¹⁴

1.2. OVERWEIGHT AND OBESITY IN CHILDREN

The term overweight and obesity refers to abnormal or excessive fat accumulation with the result of possible adverse outcomes on the health or well-being of the individual.¹⁵ Body mass index (BMI) in children differs between age groups and therefore is expressed as BMI-for-age.¹⁴ The International Obesity Task Force (IOTF) standards for overweight in children aged 2 – 18 are 19.8 – 23.3 kg/m² for overweight and 24.0 – 29.1 kg/m² for obese children.¹⁴

South Africa is a middle income country with living conditions ranging from wealthy urban suburbs to underdeveloped rural areas.¹⁷ Childhood overweight is associated with growing up in an obesogenic environment in which physical inactivity and diet are the main drivers.¹⁸ Weight gain later in childhood may contribute to adult obesity whereas weight gain in the first 1000 days of life is associated with a normal adult body weight. Children who gain weight rapidly later in their childhood are especially at risk of developing adult onset obesity and NCDs as childhood obesity tracks into adulthood.¹⁸

An increase in the prevalence of childhood obesity is becoming a global trend as seen in data from developing countries such as Brazil and Argentina with a prevalence of 22.1% and 27.9% respectively in children aged 7 – 11 years.⁶ This trend is also becoming prevalent amongst South African preschoolers.¹⁸ The prevalence of overweight in children under five showed an increasing trend from 4% in 1990 to 7% in 2011.¹⁸ More recently the SANHANES-1 study revealed a prevalence of overweight and obesity in South Africa's preschool aged children of 22.9% compared to countries such as Nigeria, Morocco and Swaziland where a prevalence of about 11% is seen.¹⁰ An increase in the prevalence of overweight in children aged 10 -14 (sexes combined), has also been observed over the last decade from 10.6% to 18.2%.⁸ Obesity figures remained unchanged during this period (4.5% and 4.7%). These results are comparable to findings from the Health of the Nation Study that reported a combined prevalence of overweight and obesity of 17.5% in primary school children.¹⁹ The main causes of the increase in the prevalence of overweight and obesity in developing countries was identified as a decrease in physical activity and a diet high in refined fats, oils and carbohydrates. There is a shift from underweight and communicable diseases in developing countries to NCD's such as obesity and its associated disorders. The latter could be the cause of seven out of ten deaths worldwide by 2020.^{7,15} It is evident that the present nutrition transition in South Africa can be associated with changes in dietary patterns that will increase the risk of NCDs in adults and children. Some of these changes include:

- A decreased intake of staple food thereby lowering fiber intake;
- An increase in food from animal origin that is higher in saturated fat;
- Decreased intake of legumes and vegetables;
- Increased intake of energy-dense convenience food (high in salt and low in nutrients); and
- Increased intake of sweetened carbonated beverages²⁰

1.3. CAUSES OF CHILDHOOD OBESITY

1.3.1 SOCIO-ECONOMIC STATUS AND CHILDHOOD OBESITY

The Thusa Bana study conducted in 2006 on South African children aged 10 – 15 years showed that the majority of overweight children live in formal urban areas.²¹ Obesity rates were almost double in white children compared to black, coloured and Indian children. The prevalence of overweight was also higher in households with higher incomes, dual income families and parents with professional/business occupations or who were self-employed.²¹ Black et al. confirms that the prevalence of childhood obesity is increasing globally and not only in higher income countries (15% in 2011), but also in low and middle income countries with a prevalence of 32 million in 2011 in children younger than five.¹⁸ In general the difference between the prevalence of overweight and obesity in children in low and high income quintile countries is small but generally higher in the higher quintiles compared to the lower quintiles of a society.^{18,22} The SANHANES-1 study reported a higher prevalence of dietary risk factors for NCDs in urban formal areas (23%) compared to rural formal areas (9 – 11%) due to a higher fat and sugar intake in the urban areas.¹⁰

Populations of a higher socio-economic status might have better quality diets in terms of variety and choice, but financial privileges also lead to more unhealthy food purchases and fast food meals.²³ Thus, it is vital to address the purchasing and consumption of unhealthy food options through public health policies. Improving support at home and at parental level regarding healthy food choices can help to address this challenge which South Africa is facing.²²

1.3.2 PARENTAL INFLUENCE ON FOOD CHOICE

Factors such as urbanization, socio-economic status, culture and a lack of time, impact negatively on the ability of parents to purchase healthy food.^{24,25} Mothers of younger children have a great influence on and control over what their children eat, the food they have access to as well as the food choices they make.²⁴ Food choices are regarded as a major factor influencing children's weight and nutritional status.^{26,27} Lindsay et al. reported that the role of parents, and more specifically mothers, are fundamental in promoting healthy behaviour and lifestyle in their children.¹⁴ Several studies have reported a positive relationship between the availability of fruit and vegetables in the home and the consumption thereof.^{24,28,29,30} The same positive correlation was found by Grimm et al. after investigating the consumption of soft-drinks and availability in the home in 8 – 13 year old children, thus confirming that children eat the food which their mothers purchase and which they have access to.³¹ A lack of fruit and vegetables in an individual's diet may lead to a reduction in the amount of fiber, Vitamin A and C, folate and potassium being consumed.³¹ All these nutrients are positively associated with the prevention of NCDs. Nel and Steyn (2002) reported a mean intake of 200g of fruit and

vegetables per day by South Africans which is half of the 400g recommended by the WHO.³² The same authors (2006) reported a sub optimal intake of fruit and vegetables by South African women.³³ A mother's eating habits can also translate into the eating habits of a child and possibly cause similar lower intake of fruit and vegetables in children.

Klesges et al. reported that parental involvement in children's eating habits lead to the consumption of meals lower in total energy, fewer total kilojoules from saturated fat and a lower sodium intake.²⁷ Having at least one meal together at dinner time represents an important moment of interaction and control.³⁴ The presence of at least one parent during the evening meal was associated with a lower likelihood of low vegetable, fruit and dairy intake. A lower risk of skipping breakfast in adolescents was also observed in the presence of an adult. When left alone, young children make poor nutritional choices, as they show a preference for foods high in sugar, saturated fatty acids and sodium.²⁵ Hence, children need guidance from their parents to ensure they make healthy food choices and choose food of higher nutritional quality.³⁵ Also, in supporting the relationship between the home environment and a child's behaviour, Spurrier correlated the habits of parents and children in terms of physical activity and dietary intake. Mothers who were more active were correlated with higher outdoor playtime scores in children.³⁶

In households where both parents are overweight there is an increased risk of their offspring being obese compared to households in which none of the parents are overweight.³⁷ The mother's BMI and child's weight had a stronger relationship than the father's BMI and child's weight.

Food preferences are shaped by a combination of genetic and environmental factors.²⁵ Parents also have an influence on the willingness of children to try new foods. Children eat what they know and what they like.²⁵ Research shows that the wider a child's early experience with food is, the healthier the child's diet later in life.³⁸ Food neophobia or the dislike of novel foods early in life was associated with the number of foods disliked or never tried by the age of eight. Parents who respond to picky eaters' limited intake may give up and only offer the child's favourite food, thereby enhancing their avoidance of unfamiliar foods.²⁵

Over control or restriction of certain food items, pressure to eat all the food offered and food rewards when eating all or specific foods, could be counterproductive and have a negative effect on a child's food preferences.²⁵ Restricting a child's food intake can result in overeating, especially in girls. Girls who were overweight at the age of five and received higher levels of food restriction had a higher tendency to overeat in the absence of hunger.³⁹

1.3.3 EMPLOYMENT STATUS OF MOTHERS

As more mothers have increasingly joined the work-force, time spent on household chores has decreased with a subsequent reliance on convenience food.⁴⁰ The statistics presented in Table 1.1 illustrate an increased trend in the Cape Town population aged 15 – 64 years in terms of employment status and level of education over the past ten years. An increase in the percentage of employed females is also evident.

Table 1.1: Demographic profile of Cape Towns' population. Adapted from Stats SA 2008⁴¹

	2001	2011
Level of education (% 20 years and older)		
Grade 12	25.4	30.2
Higher	12.6	16.2
Labour force Indicators (% 15 – 64 years)		
Employed	71	76
Females employed	68.6	71

Employed mothers are challenged on a daily basis when making food choices while shopping and preparing food.^{40,42} Competing demands for time and energy from their family may result in working mothers preparing fewer meals themselves or fewer meals being eaten at home as well as meals of poorer nutritional quality being consumed.⁴⁰ The question that therefore arises would be what the impact is of a working mother compared to a non-working mother on the family structure, especially the mothers' role as primary meal provider, on the increasing prevalence of childhood obesity. Lennernas et al. reported that working mothers from high- and intermediate socio-economic groups were of the opinion that preparing healthy meals added to their daily workload. As working mothers spend fewer hours at home, preparing healthy meals is perceived as time consuming.⁴³

Slater et al. suggests that the food choices of working mothers have their origin in a larger system of structures e.g. food systems, socio-cultural norms and working conditions as depicted in Figure 1.1.⁴² Therefore their practices, whether they be repeated or revised, can change their values, beliefs and identities regarding food over time. This can result in dietary practices that impact negatively on health such as low fruit and vegetable consumption and an increased consumption of convenience foods. For example, eating healthy food is sometimes less important when compared to eating time-saving convenience food, so that the family can participate in extramural activities. Mothers are continuously weighing up the longer time it takes to prepare "good", nutritious food compared to saving time by purchasing unhealthier convenience food, enabling the family to eat a meal together. By serving less healthy convenient options to their families, working mothers reinforce structural food norms within the family as well as within the retail market that provides convenience foods.⁴² Based on demand, the food system now offers a variety of convenience foods that are more efficient and time-saving in terms of feeding the family but not necessarily healthy.⁴²

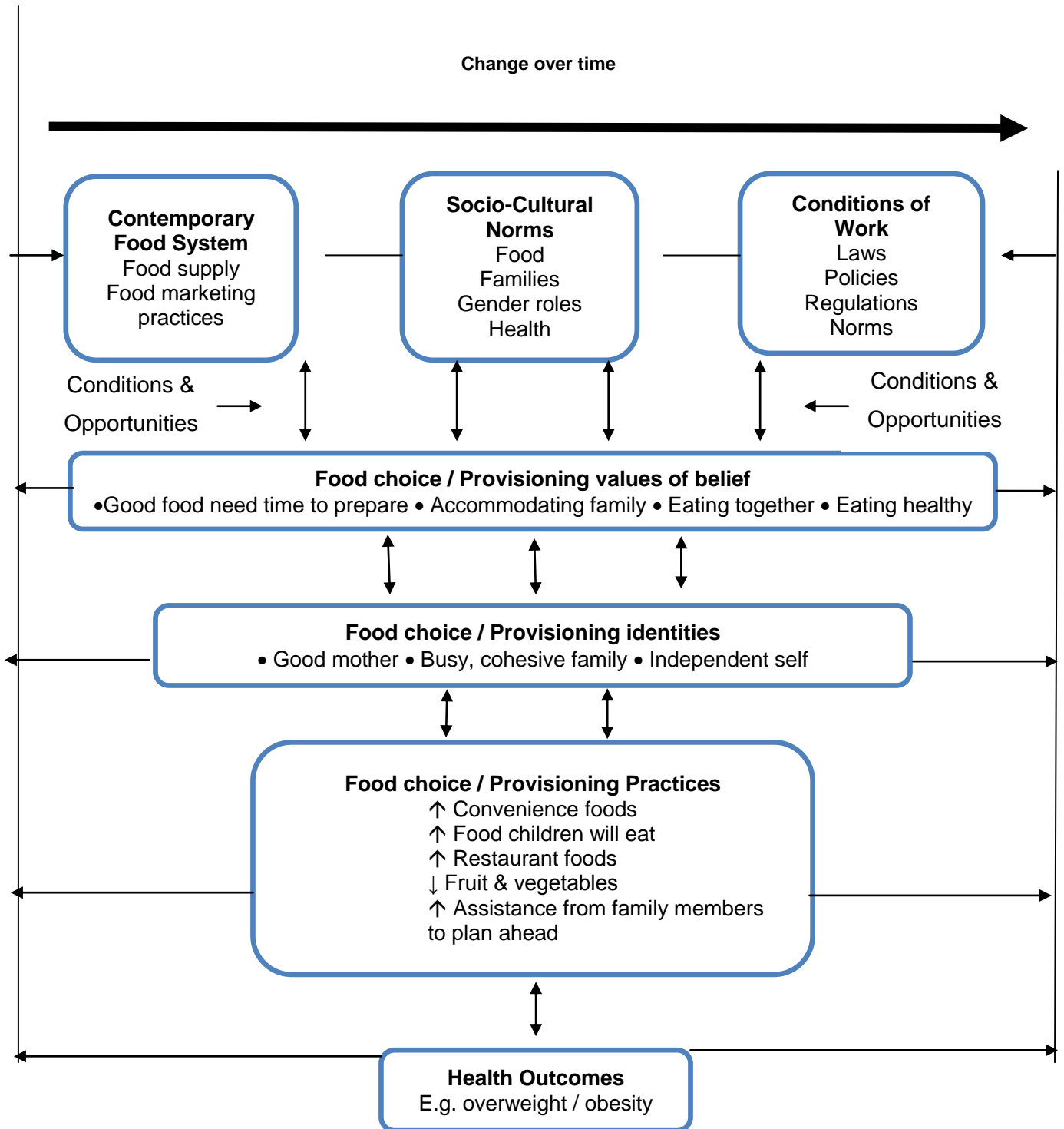


Figure 1.1: Factors influencing food choices of employed mothers⁴²

A study conducted by Kirsten et al. (2013) on 638 children (aged 6–13) in Stellenbosch in the Western Cape emphasized the role played by family-related factors in the development of obesity. Children of working mothers (more than 36 hours per week) had a greater tendency to be overweight or obese. Furthermore, the majority of children who spend less than one hour per day participating in sporting activities were likely to be overweight or obese. This poses the question whether it is more difficult for children with working mothers to participate in school-related sport activities.⁴⁴

Table 1.2 lists potential risk factors for childhood obesity identified by epidemiological research as summarized by Birch et al. Risk factors marked with an * and in bold will be explored in this study.⁴⁵

Table 1.2: Risk factors for childhood obesity⁴⁵

Demographics
<ul style="list-style-type: none"> • Parental overweight • Low income and education level* • Race/ethnicity • Rapid infant growth • Obesogenic parental eating and activity patterns*
Physical activity behaviours
<ul style="list-style-type: none"> • Increase in time spent in front of the TV • Low physical activity levels • Short sleep duration
Eating habits
<ul style="list-style-type: none"> • Formula feeding • Low fruit and vegetable intake* • High intake of energy dense food* • Increase in take-away foods* • High intake of fizzy drinks* • Larger portions • Child feeding practices of parents*

1.3.4 FOOD CHOICE OF MOTHERS

Understanding the factors that influence a mother's food choices are important when planning nutrition interventions and developing public health policies. Several factors that influence consumer purchasing behaviour have been identified in previous studies. These are depicted in Figure 1.2. and warrants further discussion.^{10,24,46}

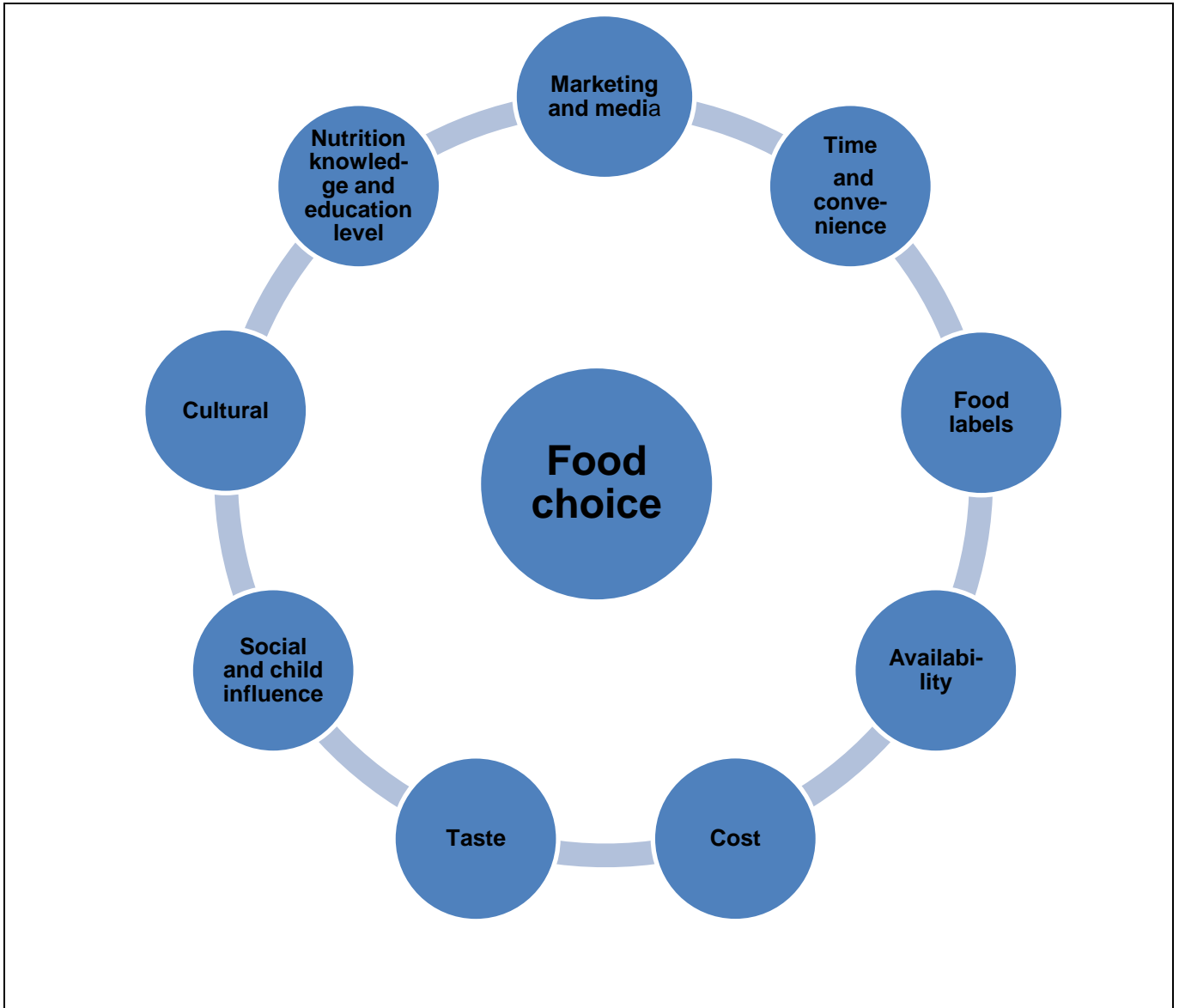


Figure 1.2: Factors influencing food choices^{10,24,46}

1.3.4.1 Cost

South Africa is a developing country where average incomes are much lower compared to developed countries. Therefore the biggest part of the SA population is particularly vulnerable to food price spikes.⁴⁷ Food expenditure is often the most adaptable item in a weekly budget. As a consequence, healthy food items such as fruit and vegetables might be overlooked in households with limited budgets.⁴⁷

The SANHANES-1 study reported that 64.5% of participants indicated that the price of the food item drives their purchases.¹⁰ Ward et al. reported that foods high in fat and sugar are typically cheaper, easier to prepare, more freely available and heavily marketed. The ripple effect of these factors are more significant among food insecure individuals and those of a lower socio-economic status.⁴⁸ On a public policy level, food pricing affects food choice because healthy, nutrient dense food costs more than less healthy energy dense foods.⁴⁹ Temple and Steyn observed a similar trend in South Africa in that energy dense food costs less per unit of energy compared to animal products, fruit and vegetables.⁴⁷ Fruit and vegetables, except for potatoes and bananas, can cost up to 50 times more per kilojoule compared to high fat, high sugar foods.⁴⁷ The consequence thereof is that financially vulnerable women opt to purchase cheaper energy-dense food to prevent hunger.⁸⁰ In addition, food with a high energy density manufactured from sugar and fat appear to cause spontaneous overeating and could lead to obesity.⁵⁰

A study conducted by Inglis et al. among 74 women in Australia with different socio-economic status examined whether modifying the household food budget would predict changes in the healthfulness of purchasing choices in low and high income families. It was concluded that food cost had a strong influence on low income women's food choices, especially regarding healthier options compared to almost no effect on the food choices of women in the high income group.⁵¹ Women from the high income group explained that they did not have a specific food budget and that if they had more money to spend on food they would not necessarily buy healthier food but spend the extra money on luxury items, or items they would not normally buy.⁵¹ In the SANHANES-1 study it was reported that 14.3% of women considered the healthfulness of a product as important when doing grocery shopping.¹⁰

In a study conducted by Temple et al. to evaluate cost of a healthy diet in South Africa, it was concluded that on average, a healthy diet in South Africa could cost 69% more depending on food choices made.⁴⁷ The food cost could be reduced by 10 – 15% if careful planning went into the menu. The latter implies that a healthy diet may be unaffordable for most South Africans. This highlights the importance of not only educating mothers on making healthy food choices but to practically show and explain to them how to make a healthy diet affordable.⁴⁷

1.3.4.2 Taste and preference

The SANHANES-1 study reported that taste was the second most important factor influencing food choice.¹⁰ Many unhealthy foods are popular due to their palatable taste.⁵² Parents are skeptical when it comes to purchasing new products because of the possibility that family members will not eat the new product, thereby increasing food waste and indirectly money.⁵² Ward et al. reported household income to have a significant impact on paying more for food if it would taste better.⁴⁸ Taste preference can thus be seen as a barrier to making healthy food choices.

In addition to the taste of food, Chopra et al. reported that mothers indicated the need to consider family members food preferences as a barrier to their own healthful eating.⁵³ It therefore seems that the mother's role is typically that of providing food whereas the family members participate in the decision-making process by communicating their preferences.⁵⁴

1.3.4.3 Influences from peers

Children are likely to be influenced by what their peers eat and often have an influence on the choices which mothers' make when buying food.²⁴ In addition, children are more involved in sub-decision making regarding colour and brand choices rather than price.⁵⁵ Concern regarding nutrition may reflect a mothers' perception of what a good mother should do. The age of the child may also play an important role in decision making. Older children have a greater influence on decision making, due to a greater cognitive ability compared to younger children.⁵⁵ It can therefore be argued that the mother's role regarding decision making among younger children is more important. After the age of eight years, television advertising, peer-group pressure and formal nutrition education become more important influences in a child's food choice, indirectly influencing the mothers' food choice.⁵⁶

Young children frequently accompany their parents to the supermarket where parents ask their children what they would prefer and children make food purchasing requests.⁵⁵ A study conducted by Calloway et al. observed the interaction between young children in Texas aged 2 – 6 years and their parents and reported that parent-child interaction in the supermarket contributed to one third to one half of family food purchasing decisions.⁵⁷

Hollywood et al. conducted a study in 2011 in Belfast that included male and female participants that were the main grocery shopper in the household. Participants reported that different demands from different family members made it difficult to make healthier food choices.⁵⁸ Participants valued the ability to satisfy the preferences of their family members and were reluctant to force healthful eating onto the family members. Foods that all family members ate, took preference over healthy food purchases that might not be acceptable to all family members. Grocery shoppers reported that it was

easier and more cost effective to choose less healthy options than to cook separate meals for individual family members. This in turn also facilitates saving time and minimizing food wastage.⁵⁸

1.3.4.4 School tuck shops

School tuck shops can be viewed as a convenient, time saving option for mothers but can also expose school children to peer pressure to make use of the tuck shop. Children can also put pressure on mothers to give them money for the tuck shop.³⁵ Compared to previous generations, today's children are faced with making purchasing decisions from an early age.³⁵ These choices include portion sizes and the quality of food and beverage purchases. In the school environment, these choices take place without parental supervision, thereby giving children the freedom to purchase unhealthy options without any immediate health consequence.³⁵

According to the Ottawa charter it is important to create a supportive environment to make a healthier choice the easier choice.⁵⁹ Wiles et al. reported that some schools make food and beverages available that are not in line with health messages from the South African Food Based Dietary guidelines (SAFDG) and could worsen the childhood obesity epidemic. The availability of unhealthy food can be tempting for the child.³⁵ Principles of good nutrition are part of the South African school curriculum from as early as Grade 1.⁶⁰ Unfortunately it is difficult for children to implement the knowledge they learn in the classroom if what is sold at the tuck shop is not in line with the healthy eating guidelines they are taught in class. A study conducted by Steyn and Temple amongst 500 South African school children, predominantly grade seven to ten and from different socio-economic groups, to investigate their eating habits, found that children had good nutrition knowledge but it did not necessarily influence their dietary behaviour.⁶⁰ Some of the findings are summarized below:

- Only half of children brought a lunch box to school, thereby relying on the school tuck shop for food;
- Most children did not bring a healthy lunch box. Unfortunately the reason was not stated. Learners attending quintile five schools, indicative of a higher socio-economic status, were more likely to bring a lunch box to school, and had higher nutrition knowledge scores but were not more likely to purchase healthy food;
- Sandwiches made with white bread was brought as a lunch box item by 25.4% of learners, compared to the 10.5% that had brown bread sandwiches in their lunchbox. Sweets and potato chips were brought by 25% compared to fruit at 16.8%.⁶⁰

The WHO policy on school-based interventions is based on evidence that supports the fact that healthy eating in schools can prevent NCDs.⁶¹ However, Wiles reported that the purchases of items such as carbonated soft drinks and foods high in salt and fat are still very popular. The majority of schools surveyed by Wiles, received a fridge from a well-known carbonated beverage manufacturer

which was placed in full view of the children and was only allowed to be stocked with the company's carbonated soft drinks.³⁵

A study conducted by Bekker investigated the influence which a nutrition regulated tuck shop has on the food choices that children make.⁶² These tuck shops offered a variety of healthier items lower in energy, sugar and fat compared to conventional tuck shops. It was found that the nutrition regulated tuck shop did have an impact on childrens thoughts about healthy and unhealthy food. Positive attitudes to fruit and some vegetables were observed and their lunch boxes contained significantly more healthy food items. Younger children in grade one to three had more positive attitudes and perceptions towards the nutrition regulated tuck shops compared to the conventional tuck shops.⁶²

Wiles et al. suggests controlling or restricting the number of unhealthy food sold at the tuck shop as well as the amount of money that learners receive from their parents to make tuck shop purchases. Educating mothers regarding the promotion of a healthy lifestyle at home should remain a priority.³⁵

1.3.4.5 Media

The media is a powerful force as it can influence the food choices consumers make by changing their perceptions and beliefs regarding food by exposing them repeatedly to positive or negative nutrition messages.⁶³ Children aged 7 - 15 years spent approximately 2.5 hours per day watching television of which approximately 24 minutes are allocated to advertising.^{63,64} Information on actual food advertising for children in South Africa is limited. Temple et al. (2008) reported an advertising rate of 16.9% for food items on SABC 1. Almost half of the foods advertised were not of good nutritional value.⁶⁵

Children in the United States are exposed to 40 000 television (TV) advertisements annually with the majority of products exposed to being sweets, toys, cereal, soda and fast food. In addition, many advertisements are aired during children's TV programs. More than 80% of advertised foods are convenience or fast foods.^{66,67} Despite the growth in digital media television remains the primary medium for marketing food in the United Kingdom (UK), the United States and Ireland, where 35% of advertising is done via TV compared to 7% through social media.⁶⁸

In a study conducted by Ferguson et al. it was reported that the food choice of children aged three to five years was clearly influenced by the advertising messages they were exposed to.⁶⁹ However, if parents intervened and encouraged children to choose a healthier option they could in some cases undo the message portrayed by commercials. Thus parents are not powerless. If they are consistent with their long-term healthy eating messages it can have a significant impact on the child's food choice. Another study by Kotler et al. confirmed the above finding when media characters were used to influence children's food choices.⁷⁰ A positive correlation was found between media characters the

children knew and choosing sugary and salty snacks. Branding a healthy food with a favorite character did not significantly change the appeal of the healthy snack compared to unhealthy options. Parents have to compete with the influence which media messages have on their children. The latter can be viewed as a barrier when mothers have to make purchasing decisions.⁷⁰

Mothers' attitudes toward advertising can have important implications for policy makers, as their purchasing decisions are generally more influenced by media reports than by other information sources.⁷¹ Yu reported that mothers were of the opinion that TV food advertisements encouraged unhealthy eating habits among their children, lead to nagging behaviour and that the inclusion of tricks, toys and gimmicks mislead their children.⁷¹ However, these mothers disagreed that TV food advertising was the most important influence on their children's eating habits and agreed that they, the mothers, were and should be the most important mediator of how many TV food advertisements their children should watch and the type of food their children eat.⁷¹

A study by Tatlow-Golden et al. reported that small children had higher levels of food brand recognition as opposed to recall of product brands or types.⁶⁸ The study also found that at the age of three to four, food brand knowledge advances significantly. This phenomenon occurs even before young children's knowledge regarding healthy food develops. The knowledge regarding unhealthy food of young children aged five years was also higher than their knowledge regarding healthy food. A possible reason for this could be that child directed advertising promotes food high in fat, sugar and salt (HFSS) and not healthier food items. HFSS food items are designed to be attractive to children, use animation, promotional items and focus on fun and magic and not information.⁶⁸

1.3.4.6 Time constraints, convenience and lack of skills

Consumers and especially working mothers have less time to make food purchases. This directly affects their food choices.⁴² There is a trend towards buying more take away foods, thereby substituting the traditional role of the mother to prepare healthy homemade meals.⁴² Busy work and family schedules influence available time for meal planning and food preparation.⁵³ Time spent working outside the home is inversely correlated with time spent preparing food.⁵³ Devine et al. reported that long working hours lead to less time to prepare food, difficulty in maintaining a regular meal pattern and less opportunity to participate in family meals.⁴⁰

The SANHANES -1 study reported that only 9.6% of South African female participants thought convenience of a product influenced food choice while 7.1% of females reported that the simplicity of preparing the product would influence their food choice.¹⁰ Devine et al. reported that the purchasing of fast food was described as a coping mechanism to curb work fatigue, speed up meal preparation, treat the family or to have a relaxing time together.⁴⁰

Another emerging aspect is the lack of creative ideas and healthy recipes and the lack of cooking skills which can contribute to mothers being dependent on prepared convenience or fast foods.⁵³ In a study by Hollywood et al. mothers reported a perceived lack of cooking skills or lack of confidence in their cooking skills as a barrier to healthful shopping.⁵⁷ The mood and emotions of the mothers also influenced their food choice. A long stressful day at work determined the type of food purchased. Pre prepared meals were chosen after a long day at work to avoid preparing a meal from scratch as mothers felt too tired.⁵⁷

Foods prepared outside the home, fast food or convenience food has been shown to be higher in fat, kilojoules, salt and sugar as well as low in fruit and vegetables. Therefore, diets composed of many meals prepared outside the home may lead to weight gain and overweight.⁴⁰

1.3.4.7 Knowledge

It would be of value to gain more insight into the seeming paradox between the nutrition knowledge of parents of primary school children and their actual food purchasing practices.⁷² Despite various strategies to increase consumer awareness of what a healthy meal entails, the prevalence of diet-related chronic diseases of lifestyle are increasing, indicating that knowledge regarding healthy food choices does not always translate into healthy eating behaviour.⁵⁸ Brown et al. reported a disconnection between knowing what should be eaten and how to achieve it after conducting a study to evaluate the effectiveness of the Food Based Dietary Guidelines (FBDG) as an educational tool. Having knowledge regarding grocery shopping is a prerequisite to facilitating food choice modification.⁷³

Evidence shows that a higher level of parental education leads to a higher level of basic nutrition knowledge. This in turn has been linked to healthier food choices.^{10,28,46} Ward et al. reported that food purchasers with a higher level of education, were more likely to think about the health and nutritional benefits of food before cost.⁴⁸ In contrast to the above findings, Alderson et al. reported that mother's nutrition knowledge and financial status did not always translate into healthy food choices for their adolescent children.⁷⁴ A lack of nutrition knowledge has been identified as a potential explanation for unhealthy diets and high obesity rates among disadvantaged communities.⁷⁵

1.3.4.8 Food labels

It has been documented that female consumers with a higher level of education and of a higher socio-economic status are more likely to read food labels.^{10,46} Hence food labels is a tool to guide consumers in making informed choices and giving them the right to choose and compare food options. It is also an instrument that provides consumers with information to make nutritionally sound food choices.⁴⁹ The question however, still remains whether consumers attach any value to food

labelling when making food choices, whether it facilitates behavioural change and whether consumers really understand the information depicted in the nutrition information table.⁴⁹

A general lack of understanding on how nutrition information can assist in making healthy food choices was reported by Lindsay et al.¹⁴ Participants reported that reading labels is time consuming and does not assist them in making healthier choices.¹⁴ Maubach et al. reported similar results and added that mothers relied on recommendations from family members, the media or their own prior knowledge.⁷⁶ However, it seemed that logos and health claims were faster and easier to understand e.g. the Heart Foundation tick.⁷⁶ Participants also reported that these products were sometimes more expensive. With regards to health claims, the ones relating to added vitamins and minerals were most influential, especially if the parents felt their child did not eat enough fruit and vegetables.⁷⁶ Food labels were reported to be useful when purchasing products for family members with specific dietary requirements or allergies, however the focus was mainly on the ingredient list and not necessarily the nutritional value.⁷⁶

Grunert et al. reported that 27% of UK residents looked for nutrition information on food labels.⁷⁷ However, in order to improve consumer understanding and use of the information depicted on food labels, it would seem that finding the right format for displaying nutrition information optimally, should be the first step in increasing usage rates. The above study also showed that the degree of usage depend on the product category. It seems that nutrition labels are more often referred to for products that already have an established healthy image such as yoghurt compared to unhealthy food such as doughnuts and pies. Therefore it can be deduced that consumers are less interested in nutrition information for indulgent type of foods.⁷⁷

Research by Jacobs et al. regarding the understanding of nutritional information on food labels, reported that information most often used, were the expiry date, ingredient list and nutritional information such as the fat and cholesterol content. The font size seemed to complicate the reading of labels. Price and taste were reported to be more important when choosing a product than the nutritional information. Other reasons for not reading food labels were reported to be a lack of education, nutrition knowledge, habitual behaviour and time constraints.⁷⁸

Results from a study by Bosman et al. on SA consumers from nine metropolitan areas reported a tendency to consult food labels for health information motivated by the fact that labels are based on science and are trustworthy. In the above study, food labels were considered to be more important than the price of a product.⁷⁹ Barriers against reading food labels were reported to be lack of time, interest, price and habitual purchasing.⁷⁸

Younger individuals and those of a higher socio-economic status, have a better understanding of nutrition labels due to higher levels of nutrition knowledge. Individuals with an interest in healthy eating such as those from higher socio-economic groups, women and older people also refer to food

labels more frequently. A lower usage of food labels was reported in individuals with a higher BMI and those with children younger than 16. Therefore usage is a matter of interest in healthy eating and understanding a matter of knowledge.⁷⁷

To ensure that the information presented on food labels are accurate and not misleading to the public certain regulations was put in place. One of these is the New South African Food Labelling and Advertising Regulations Act. The New South African Food Labelling and Advertising Regulations (R146) were published in the Government Gazette in March 2010. In May 2014 an amendment to these regulations was published and opened for comments. This draft legislation R429 is not yet finalized and R146 is still active. New legislation was driven by misleading marketing messages by South African food manufacturers.⁸⁰ The objectives of the new food labelling act is to create a platform for all products stating only facts, not confusing the consumer by word or implication and using the label as a means for consumer education.⁸⁰

Some of the mandatory information required on the food labels is listed below:

- Accurate name of the product to inform the consumer of exactly what is in the packaging
- Ingredients in descending order of mass
- Allergens in a prescribed format
- Country of origin
- Batch number
- Use by date/Best before date
- Nutrition Information Table for all products. Products without claims may use calculated nutritional values.⁷⁹

In addition, descriptive words that could be misleading or untrue may not appear on products such as % fat free, nutritious, healthy or healthful, wholesome and diabetic friendly. Words such as sugar free or fat free are allowed if specific conditions as set out in the food labelling regulations are met.⁸⁰

The above mentioned factors that have an influence on food choices can also result in making poor food choices that can impact negatively on the health of children and possibly contributing to the current obesity epidemic. Childhood obesity has far reaching and serious consequences and therefore the epidemic should be managed. The following section presents a summary of the consequences of childhood obesity.

1.4. CONSEQUENCES OF CHILDHOOD OBESITY

The long term consequences of childhood overweight and obesity often only presents in adulthood.^{19,4} Obese children have a higher risk of developing health related problems such as cardiovascular

disease, insulin resistance, obesity associated type 2 diabetes, some cancers and asthma in adulthood.¹⁵ Although the end points of cardiovascular disease are not often seen during childhood, almost all the risk factors are present. These include high systolic and diastolic blood pressure, dyslipidemia, abnormal vascular endothelial function and atherosclerotic lesions.

Other conditions found in association with overweight and obesity in childhood include obstructive sleep-apnea, early onset of puberty, foot and other skeletal abnormalities, polycystic ovarian syndrome and fatty liver disease.¹⁵ The complications of childhood obesity often persist into adulthood and overweight and obese children have a higher probability of becoming obese adults.^{15,21} They also have an increased risk of developing psychological and psychiatric problems such as a low self-esteem, lack of confidence, depression and negative self-perception.¹⁵ These in turn can lead to withdrawal from physical activity which aggravates obesity.^{15,21}

1.5. INTERVENTIONS TO PROMOTE HEALTHY FOOD CHOICES IN CHILDREN

The relationship between overweight and NCDs is well established and forms the basis of the WHO recommendations for preventative measures.⁴ Suggestions to create a supportive environment for healthy diets and increased physical activity have been made and the key elements of such a strategy include:

- Creating supportive environments through public policies that promote a variety of low-fat, high-fiber foods;
- Promoting healthy behaviours such as eating more fruit and vegetables, whole grains and nuts; and
- Reducing the amount of fatty, sugary food in the diet.⁴

These suggestions are in line with the South African FBDG that was revised in 2012. The FBDG are short, positive, science-based messages to serve as an educational tool and strategy to promote public health nutrition.^{5,81} The revised FBDG include two important guidelines pertaining to both fat and sugar intake. “Eat fats sparingly” and “use vegetable oils rather than hard fats” and “use sugar and food and drinks high in sugar sparingly”. These are aimed at preventing NCDs in individuals aged seven years and older but the messages might not be reaching the public at large.³ Unfortunately, there are some major challenges when communicating nutrition messages as documented by Goldberg and Silva.⁸² Reasons include the evolutionary nature of science on which recommendations are based, the different sources of communication, the motivation for using a specific source of communication and the diverse nature of consumers who receive the nutrition communication.⁸²

In addition to the WHO guidelines⁴ and the FBDG,³ the 63rd World Health Assembly (WHA) endorsed an additional set of recommendations to control the marketing of unhealthy food and non-alcoholic beverages to children as set out in R146, guideline 14: Criteria for the commercial marketing of foods and alcoholic beverages to children.⁸³ The promotion, marketing and advertising of foods high in salt, sugar and fat are one of the key drivers for the increase in NCDs.⁸³

The WHO Technical Meeting concluded that there is a strong evidence-based rationale that links the commercial promotion of foods and beverages to poor diets in children. The evidence highlights the following key points.⁸³

- There is extensive food and beverage marketing to children;
- Children are aware of and engage with this promotion;
- The promotion is overwhelming for energy-dense, micronutrient poor foods and undermines the recommendations for healthy eating; and
- Food promotion has a negative effect on children's food knowledge, attitude, practices and consumption.

The manner in which children respond to food advertising seems to be similar regardless of their socio-economic status.⁸⁴ However, children in developing countries may be more vulnerable to food marketing because they might be less familiar with it. Children are the key entry point for companies in developing countries because they are more flexible and responsive to advertising than their parents.⁸⁴ Therefore an intervention on legislative level, to control marketing of unhealthy food and drinks to children can have a positive impact on the food choices children make.

1.6. MEASURING ADULTS' PERCEPTIONS, ATTITUDES AND KNOWLEDGE

Different techniques can be used to obtain complementary data from an adult population such as self-administered questionnaires and focus group discussions. Combining qualitative and quantitative research methods can provide a more complete account of a phenomenon, especially in nutrition science where human behaviour and behavioural change play an important role.⁸⁵

1.6.1 SELF-ADMINISTERED QUESTIONNAIRES IN ADULTS

The use of self-administered questionnaires as data collection tool yields qualitative data. They are generally easy to use, cost effective and require the least involvement from the subjects and researcher.⁸⁶ Self-administered questionnaire surveys are a way of collecting data in epidemiological

surveys from a large population where it is impossible to study each individual.⁸⁶ Table 1.3 lists examples of research that used self-administered questionnaires as data collections tools.

Table 1.3: Examples of research that used self-administered questionnaires

Researcher and country	Size of study population	Type of questionnaire and purpose
Lissau et al., 2005 ⁸⁹ (Denmark)	2153 education staff at schools	Self administered questionnaire. to describe food and drinks available in school canteens.
Murphy et al., 2012 ⁹⁰ (United States)	634 parents with preschool children	Self-administered questionnaires to gather information on diet and physical activity behaviours in the home environment.
Levy et al., 1998 ⁹¹ (Missouri State University)	208 college students (17 – 53 years of age)	Self administered questionnaires to test knowledge, attitude and behaviours of participants regarding their ability to perform tasks using nutrition labels.
Hardus et al., 2003 ⁹² (Deakin University, Australia)	315 adults (male and female, aged 18 – 65)	Self-administered questionnaires to investigate perceptions about causes and prevention of childhood obesity among primary school children.

The questionnaires are completed anonymously by the respondents and therefore the answers are not affected by interviewer variation. However, an interviewer can be present to assist respondents should problems arise. Questionnaires can be self-administered or interviewer administered. Questionnaires can be sent out, administered over the phone or done in person.⁸⁶

The response rate to questionnaires can be lower compared to other methods of data collection. Therefore the inclusion of an incentive such as a prize or lucky draw might increase the response rate considerably. The response rate can also be increased by handing out the questionnaires to children at schools to reach the parents.⁸⁵ Care must be taken that the questionnaires are not too long as this can reduce the response- and completions rate. The respondents should be able to complete the questionnaires within 30 – 60 minutes, preferably less.⁸⁶

Questions should be easy and straightforward otherwise a lack of understanding can also lead to a low completion rate or inappropriate answers. Questionnaires can include open-ended and closed questions. Open-ended questions have no restriction on the answers given whilst closed ended questions restrict the subjects to a limited amount of the answers. Open-ended questions can be used to record simple factual information such as name and age. Closed questions should be mutually exclusive. These questions should be coded for the purpose of data analyses.^{85,86}

The format of the questionnaire is of extreme importance. Care must be taken with the neatness of the questionnaire, the font size should be large enough and the general flow should be easy to read

and logical. Questionnaires should be piloted prior to a study to evaluate e.g. the flow of the questionnaire, the comprehension and length thereof. Niewenshuis suggests that the questionnaire should always start with easy questions to motivate participants to continue and complete the questionnaire.⁸⁶

Likert scale type questions are often included in questionnaires: they are used to measure the extent to which a person agrees or disagrees with a statement and are used to measure attitudes, preference and subjective reactions. Traditionally a four or five point scale is used. It is advisable to have an even numbered scale to avoid excessive selection of the middle value.⁸⁷

The advantages of questionnaires can be summarized as follows:

- Good method to measure attitude, opinions and knowledge of the study population;
- Can be used for descriptive, explanatory and exploratory purposes;
- Relatively cheap and less time consuming;
- No inter-interviewer variation;
- Can be anonymously completed⁸⁷

Disadvantages include that it can only be used on literate individuals and the researcher has little control over data quality and completion. Therefore the questions should be clear, unambiguous and well laid out.^{87,88}

1.6.2 FOCUS GROUP DISCUSSIONS WITH ADULTS

Focus group discussions is a qualitative research method where-by participants are brought together to engage in a focused discussion around a certain topic of interest to increase the understanding there-of.^{93,94}

Focus group discussions are an appropriate data collection tool when exploring concepts, opinions and ideas and measuring the degree of consensus on a topic. Group interaction is used to generate data. Focus group discussions are said to generate more critical comments than individual interviews.⁹³ Table 1.4 summarises examples of studies that used focus group discussions as a data collection method.

Table 1.4: Examples of research that used focus group discussions as data collection tool

Research and country	Number of participants	Purpose
Love et al., 2010 ⁸¹ (South Africa)	Fifteen focus group discussions with 137 women aged 19 – 63	To assess the understanding of the preliminary South African FBDG.
Charlton et al., 2003 ⁹⁵ (South Africa)	Four focus group discussions with 39 black women aged 17 – 49	To identify sources of nutrition knowledge and to determine level of nutrition knowledge pertaining to obesity.
Zachary et al., 2013 ⁵² (Baltimore)	Three focus group discussions with 22 adults in addition to 37 semi-structured interviews	To understand grocery purchases in low income urban environment.
Pohlmeier et al., 2012 ⁹⁶ (Texas)	Four focus group discussions with 40 college students aged 18 – 29	To assist in developing a Nutrition labeling program within University Food Service.

Qualitative research produces findings that cannot be derived from standard statistical procedures.^{85,94} It is defined as a naturalistic approach that seeks to understand phenomena in uncontrolled, context specific settings. A focus group is defined as a collection of seven to twelve individuals recruited by purposive sampling who are asked questions relevant to the research question and objectives and prompted to respond freely.^{85,93,94} The discussion takes place under the guidance of the researcher/facilitator and explores attitudes, perceptions, barriers and opinions of the participants on a prearranged topic.^{85,93} More than one focus group per study is recommended e.g. three to five.⁸⁶ It is also recommended that novice facilitator's work with smaller groups of six to eight members.⁹⁴ Sampling of participants are done purposively, the reason being that participant selection relates to the intentional selection of a sample based on some characteristics.⁸⁵

When choosing the target group it is important to decide whether the participants need to be homogenous or heterogeneous, is the group composed of experts or lay people with regards to the topic and how difficult will it be to recruit the group. The most basic requirement would be that the

topic of discussion is relevant to the group. Furthermore focus groups are more successful when the participants feel comfortable and know that their suggestions and comments will be listened to and taken seriously.^{93,94}

Preparing an appropriate discussion guide is extremely important. Care should be taken not to ask leading and biased questions. The interviewers should decide whether he/she will use a discussion guide format or a fully developed set of questions. The discussion guide is a list of key words or phrases which serves as a reminder to the interviewer. The questioning route is a list of structured questions written in full sentences. Although this method might take longer to prepare it ensures that all questions are covered according to the objective of the study. It also allows for more accurate data analysis.⁹³

An individual researcher can serve as the data collection instrument in qualitative research by taking notes, conducting interviews with groups or individuals, and analyzing interactions between people.⁸⁵ In most cases it is better that the interviewers have some background knowledge regarding the topic.⁹³ In addition, the researcher analyses text, audio or visual data and determines themes, concepts, meanings and emotions. Themes and concepts are linked. Words sound and pictures are the data elements. These are captured in transcriptions and direct quotes and are often presented as data.⁸⁵

Bias can be avoided by having a clear discussion guide, using probes, summaries and checking that the interviewer understands what was said by the participants. The interviewer should be aware of his own powerful role and stay neutral at all times during the discussion to avoid influencing the participant responses.⁹⁴

Audio-taped sessions are transcribed to have a written record of responses. In addition to note-taking and recording, an observer should also capture non-verbal cues such as body language, facial expression, nodding and other interactions. Verbal data is then combined with observational data.⁸⁴ The use of an assistant/observer who takes notes and record verbal cues can add value to the data collection process and enhance the credibility thereof.⁸⁶

It is common practice to offer some kind of incentive to participants e.g. vouchers, lucky prizes or cash. During the actual discussion the provision of refreshments can help to set the participants at ease and create an informal atmosphere.⁹³

Advantages of focus group discussions can be summarized as follows:

- Involves a small group of people;
- Guided by predetermined, open-ended questions focused on the topic and documented in the focus group guide;

- Increased participation by group members feeling at ease to discuss topic;
- Allows participants to comment, explain and share their experiences and build on each other's responses.^{93,94}

Limitations of focus group discussions can be summarized as follows:^{85,93,94}

- Requires a facilitator;
- Number of questions limited due to time constraints;
- Verbal data collection can complicate data analyses;
- Results cannot be generalized due to the small group sample;
- Labour intensive;
- Risk of bias from the interviewer's side to obtain a desired response by the participants through wording of questions or paying more attention to particular quotes from the transcripts;
- Bias can come from focus group members who want to agree with the interviewer (acquiescence bias) or want to be seen in a generally positive light (desirability bias).⁹³

1.7. MOTIVATION

Dietary habits acquired during childhood persist into adulthood. Parental attitudes have a direct impact on their children through food and beverages purchased and served in households, as it influences children's exposure, habits and food preferences.²⁴ Childhood overweight is associated with growing up in an obesogenic environment. Evidence shows that weight gain in later childhood can increase the risk of adult obesity and NCDs.¹⁸

The majority of studies conducted on this topic of mother's food choice hail from Europe and the UK. In addition, the available body of evidence cannot be extrapolated to a South African context. Noble et al. suggest that conducting research involving parents from a range of socio-economic backgrounds will facilitate more insight into this complex relationship between behaviour and food choice.⁷²

As the SANHANES-1 study concluded that food purchasing is mainly done by females (76.4%), this study will focus specifically on mothers but aims to explore a deeper understanding of the factors that influence female food purchasing behaviour by comparing data about employed versus unemployed mothers.¹⁰ In doing so, not only will more insight be gained into their purchasing practices, but light will be shed on the reasons for their food choices.

Lindsay et al. suggest that interventions and education programs to prevent childhood obesity should target the origin of the problem, namely the family home.¹⁴ Provision of parental support on the home front through the availability and consumption of healthier food options should be an essential component of any policy.¹⁰ Healthy lifestyle behaviours including healthy food choices and purchases from a young age is crucial, as it lays the foundation for adult health and quality of life.⁹⁷

In the home, parenting style may play a role in how children relate to food.⁹⁷ Hence, parents are in a position to provide explicit modeling and logistic support. Brown et al. reported that a positive parental role model may be a better way to improve a child's diet rather than attempts at dietary control.⁷³ Parental influence on nutrition is most effective in children aged five to eight years due to the fact that their cognitive decision making skills are still developing.⁹⁸ Kruger et al. suggested that for the prevention of childhood obesity, the focus should be on girls aged 10 – 13 years, as there was a significant association between age and body fat percentage in these girls. The latter finding strengthens the motivation to target mothers of primary school aged children.²¹

There is also a need to understand what influences working mothers' food choices and decision making and whether these factors differ when comparing them to that of non-working mothers. Identifying these factors and barriers can direct future health education strategies and social marketing campaigns targeting mothers and their children's food choices in order to curb the growing epidemic of childhood obesity in South Africa.⁷²

1.8. CONCLUSION

There is an increase trend of childhood overweight and obesity in South Africa that should be addressed collectively at schools, at community level and at home. The aim should therefore be to increase awareness of affordable, healthy food options and the promotion of healthy food choices and practices on this specific platforms.¹⁰

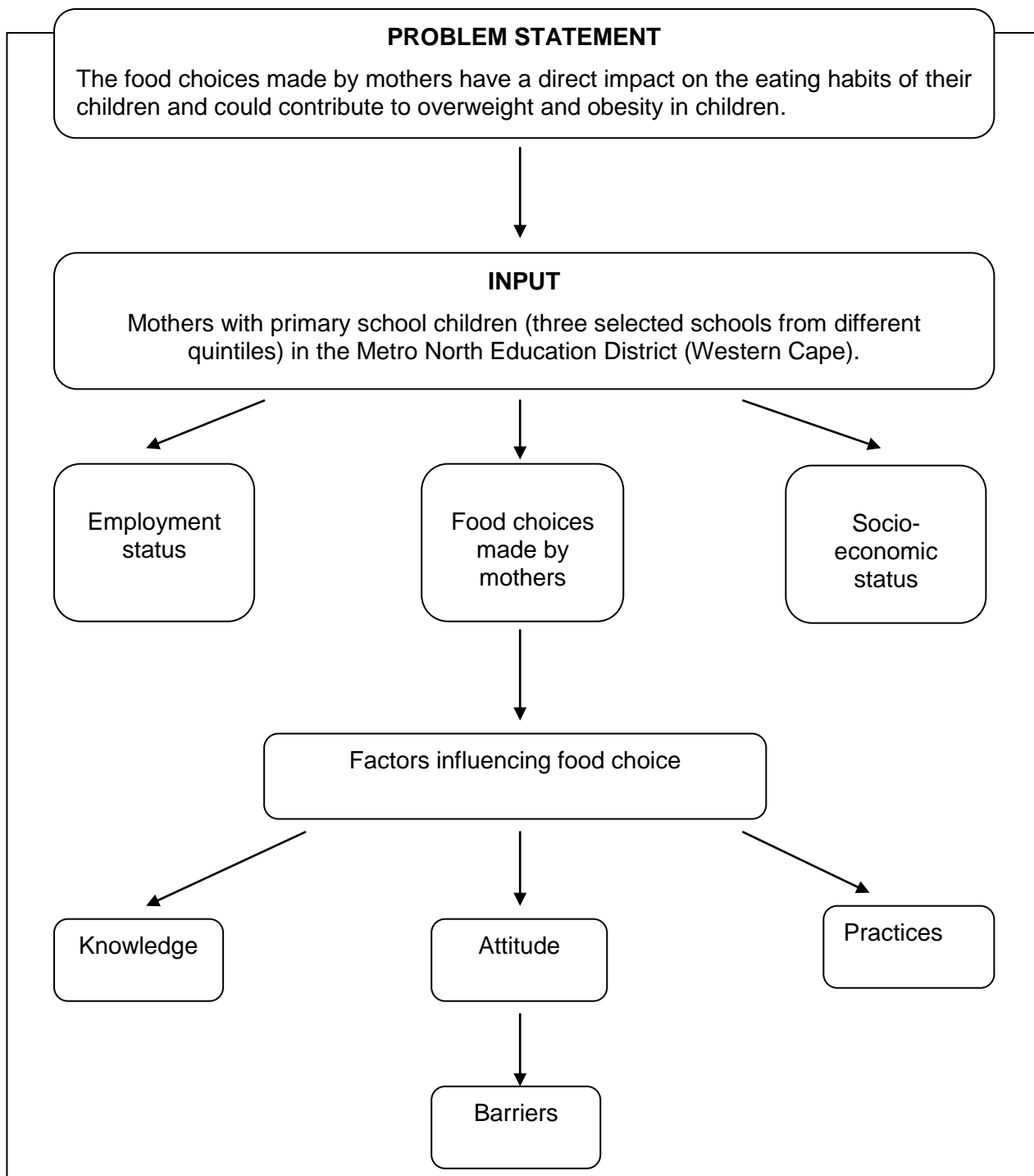
Judging from the large number of South Africans living with NCDs and overweight/obesity being a strong risk factor for developing these diseases of lifestyle, it is clear why rapid and effective interventions are needed to curb this pandemic.¹⁰

Parents, and more specifically mothers, should be targeted in prevention programs because children model their behaviour on that of their parents in aspects that include eating behaviour. Therefore, the researcher aimed to explore factors that influence the food choices made by local working versus non-working mothers and identify challenges mothers face to provide healthy food for their children in dual income families.

The current study could be of value in providing new insights into the factors influencing food choices in mothers from diverse socio-economic backgrounds and employment status, and make recommendations for alternative strategies in order to address the current childhood obesity epidemic through mothers who can and should play a critical role in the prevention of this public health problem. Hence, the results of this study can be of great value in developing interventions that involve mothers as important forces for change aimed at the prevention of childhood obesity.

1.9. CONCEPTUAL FRAMEWORK

The conceptual framework provides an overview of this study starting with the problem statement, research question, variables, factors influencing food choice and ending with the identification of barriers to making healthy food choices.



CHAPTER 2

METHODOLOGY

2.1 STUDY AIM AND OBJECTIVES

The main aim of the study was to investigate the factors that influence food choices of mothers with children attending primary schools in the Metro North Education District of Western Cape Province, South Africa.

For the purpose of this study, a mother was defined as biological, foster or stepmother of the child.

2.1.1 PRIMARY OBJECTIVES

- To determine the knowledge, attitude and practices of mothers regarding healthy and unhealthy food.
- To determine the factors that influences the food choices of mothers with primary school children.
- To determine mothers' knowledge regarding basic aspects of childhood obesity.
- To investigate the barriers which mothers face in making healthy food choices.

2.1.2 SECONDARY OBJECTIVES

- To identify and compare significant differences between working and non-working mothers from different socio-economic backgrounds regarding their knowledge, attitude and practices regarding healthy and unhealthy food choices.
- To identify and compare significant differences between working and non-working mothers regarding the factors that influence food choice.
- To identify and compare significant differences between mothers from different socio-economic backgrounds regarding the factors that influence food choice.
- To identify and compare differences between the barriers that influence food choice between working and non-working mothers.

2.2 STATEMENT OF HYPOTHESES

For the purpose of this study, the following null hypotheses were investigated:

- H^{01} There is no difference between the factors that influence food choice of working and non-working mothers of primary school children.
- H^{02} There is no difference in the nutrition knowledge, attitude and practices between working and non-working mothers of primary school children.
- H^{03} There is no difference between the nutrition knowledge, attitude and practices of mothers of primary school children from different socio-economic backgrounds.

2.3 STUDY DESIGN

An observational, cross sectional, descriptive survey with an analytical component was conducted. Quantitative data was obtained through self-administered questionnaires and qualitative data was collected by means of focus group discussions. Hence, a mixed method approach with a triangulation study type design was used as depicted in Figure 2.1. Triangulation refers to the concept where qualitative and quantitative data are obtained simultaneously, but collection and analyses of data is done separately.⁹⁹ The purpose of this design is to obtain different but complementary data on the same topic and to develop a more complete understanding of the variables under investigation.⁹⁹

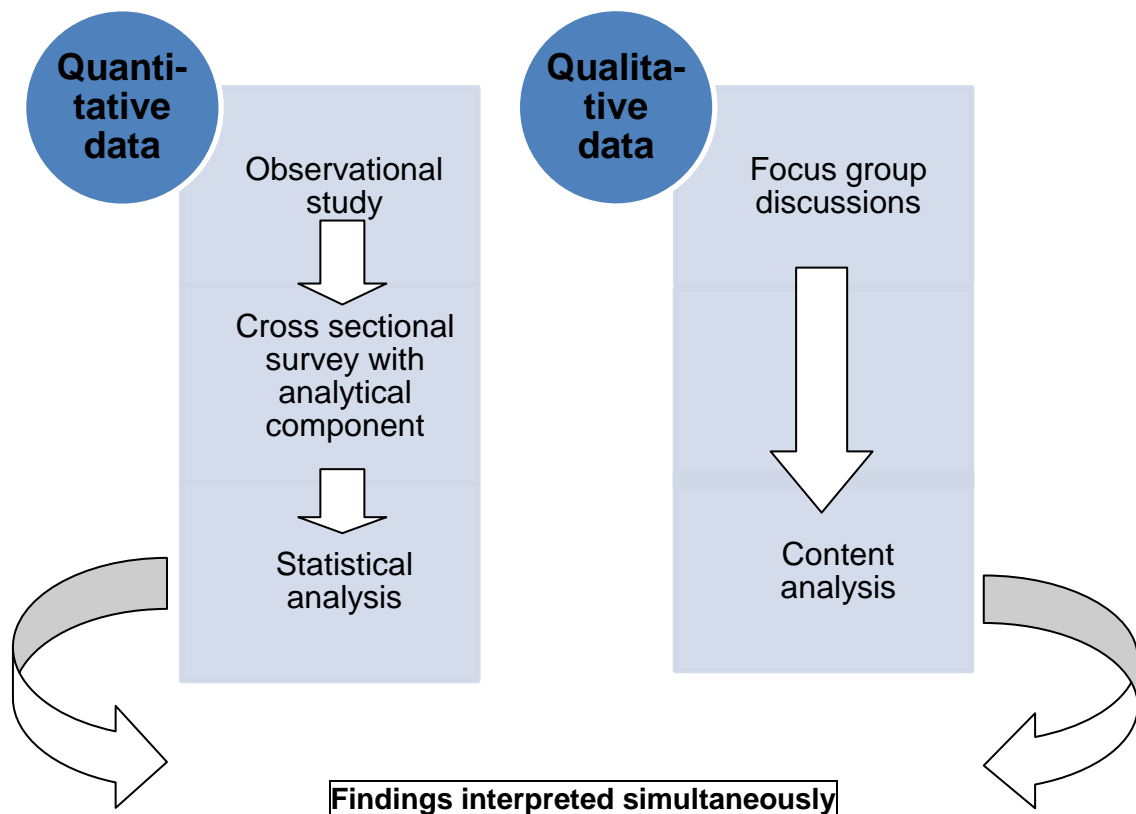


Figure 2.1: Triangulation of mixed methods

2.4 STUDY POPULATION

The study population consisted of mothers with children attending randomly selected public primary schools in the Metro North Education District, stratified according to the national quintile levels.

2.5 SAMPLING METHODS

The study was conducted in two phases. During phase one quantitative data was collected by means of self-administered questionnaires. Phase two yielded qualitative data by means of focus group discussions. The school representing quintile 1-3 is referred to as School A, representing quintile 2 as School B and representing quintile 5 as School C. A description of the two phases follows.

2.5.1 SAMPLING OF THE SCHOOLS (PHASE 1)

The Metro North Education District was selected for logistical reasons related to finances and time constraints, both of which had an influence on travel arrangements to facilitate data collection. Hence, a list of schools in the Metro North Education District was sourced using the Western Cape Education Department (WCED) website.¹⁰⁰ The researcher then contacted the Metro North Education Department and obtained a list that facilitated the division of schools into five different quintiles determined on a national level by the Department of Education based on annual school fees. Subsequently schools were stratified according to the national quintile they fall into, with quintile one being schools in the lower socio-economic status group and quintile five being schools in the highest socio-economic status group.

For the purpose of the study, schools from quintile one to three were grouped together as these schools all qualify for exemption from school fees and represent a similar socio-economic status. Table 2.1 below shows a summary of the school profiles.

Table 2.1: Profile of schools in the Metro North Education District (WCED website)¹⁰⁰

National quintile	Number of schools		Number of pupils	Annual school fee
Quintile 1	2	Total 29	25 435	No school fee
Quintile 2	3			
Quintile 3	24			
Quintile 4	61		48 763	R0 – R1500
Quintile 5	38		33 692	Above R1500

One school from each quintile was selected using simple random sampling by means of the Microsoft Excel random generation numbers function. School A was selected from quintile one to three, School B from quintile four and School C from quintile five. If permission to participate in the study was not given by the sampled school's principal, another school from the list was selected using simple random sampling. A multistage sampling procedure, illustrated in Figure 2.2, was therefore used to select the schools.

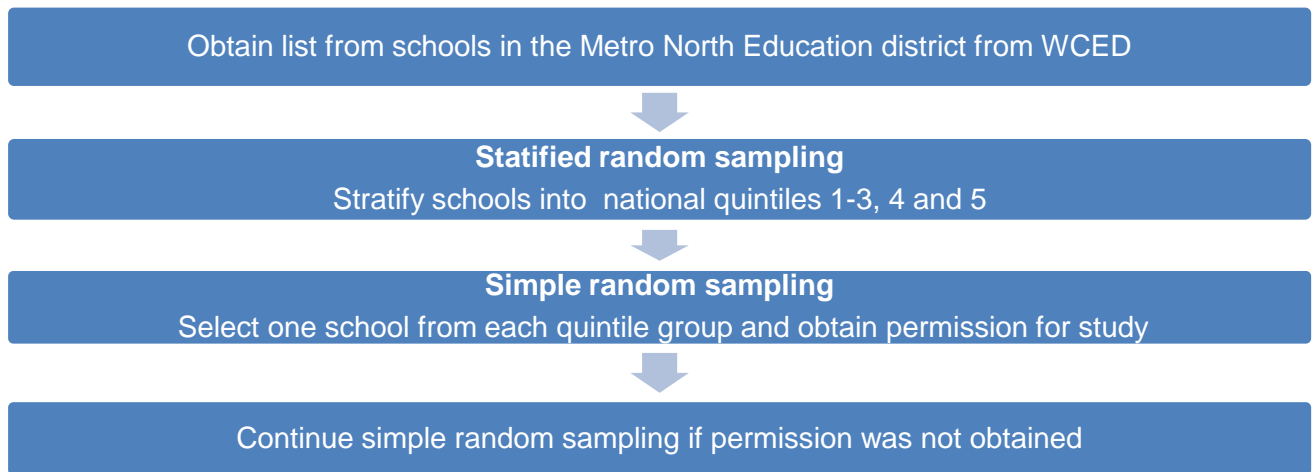


Figure 2.2: Sampling of the schools in the Metro North Education District from WCED. (Western Cape Education Department)

2.5.2 SAMPLING OF THE MOTHERS

Selected schools that gave permission to participate in the study were stratified into seven grades. Two classes per grade were randomly selected adding up to a total of 14 classes per school. All eligible children (according to the inclusion and exclusion criteria) from the selected classes received a questionnaire to take home to their mothers. Simple random sampling of another class was done if the sample size was too small. The sampling process for mothers is depicted in Figure 2.3.

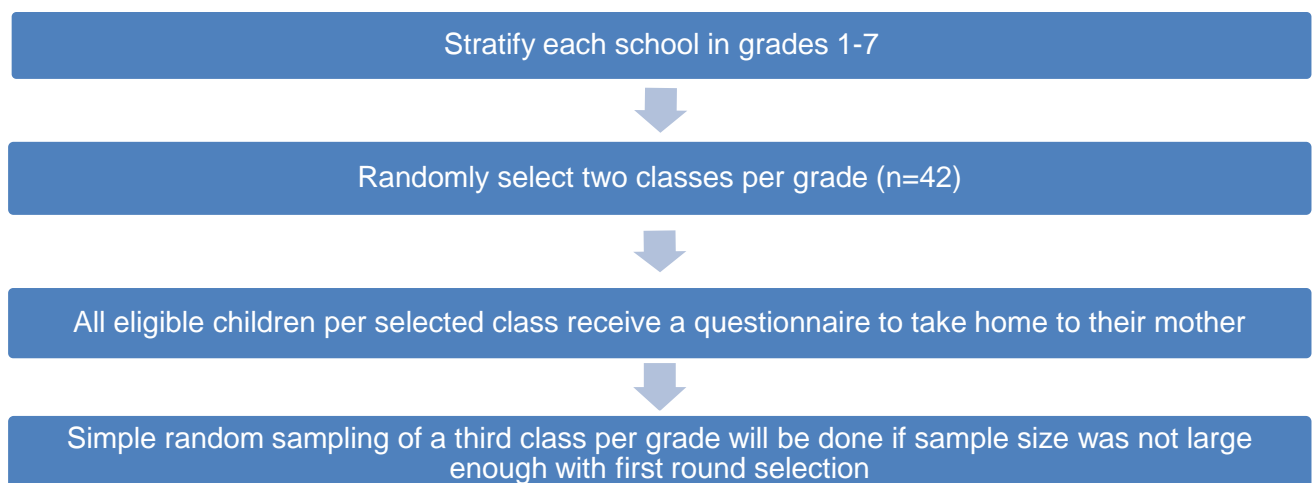


Figure 2.3: Sampling of mothers for questionnaire distribution

2.5.3 SAMPLING OF THE FOCUS GROUP PARTICIPANTS (PHASE 2)

With qualitative research, purposive sampling is done to ensure that respondents cover the full range of possible characteristics of interest. The sampling frame should therefore maximize variation.⁹⁴

Mothers had an option to provide their contact number on a return slip on the last page of the questionnaire (See Addendum C). Mothers also indicated their employment status and grade of the child that received the questionnaire, on this form. By supplying her contact details on the return slip, the mother indicated her willingness to participate in a focus group discussion. Return slips from the questionnaires were stratified into working and non-working mothers as well as different school quintiles. Mothers from both groups were contacted telephonically to determine whether they met the inclusion criteria. If the mother met the inclusion criteria she was invited to participate in the focus group discussion. In the case of a mother not being interested or unavailable to participate in the discussion, the next telephone number was used and the process continued with the aim of recruiting at least seven to ten participants per focus group. Six focus groups were conducted, three with working mothers and three with non-working mothers, recruited from schools ranging from quintiles one to five to ensure maximum variation.

2.6 SAMPLE SIZE

2.6.1 SELF-ADMINISTERED QUESTIONNAIRE

The sample size of the study population for completion of the questionnaire was determined with the assistance of a statistician from the Stellenbosch University Centre for Statistical Consultation.

A power analysis was done to calculate the sample size using a 2-way ANOVA-test. The power was set at 90% with an effect size of 0.35 and a Type 1 Error Rate of 0.05. A minimum of 53 participants ($n=53$) per group was needed. An expected return rate for questionnaires was assumed to be 25% and therefore the researcher over sampled for this expected low response rate and aimed to send out four times the required amount of questionnaires needed. The larger number of questionnaires also compensated for the fact that the ratio of working to non-working mothers could not be pre-determined prior to the study (see Table 2.2).

Table 2.2: Distribution of questionnaires per national quintile (NQ) and expected sample size

	NQ 1-3 School A	NQ 4 School B	NQ 5 School C
Average number of learners per class	27	21	20
Total selected classes per school (2 per grade)	14	14	14
Total questionnaires sent out per school	380	294	276
Total questionnaires sent out for study	950		
Expected return rate (25%) per school	95	74	70

2.6.2 QUALITATIVE COMPONENT

Qualitative findings were linked to quantitative results to enrich the understanding of factors influencing food choice. Six focus groups were formed, two per school inclusive of one with working mothers and one with non-working mothers in the three selected schools. Figure 2.4 is a diagrammatic depiction of the expected sample size for the focus group discussions.

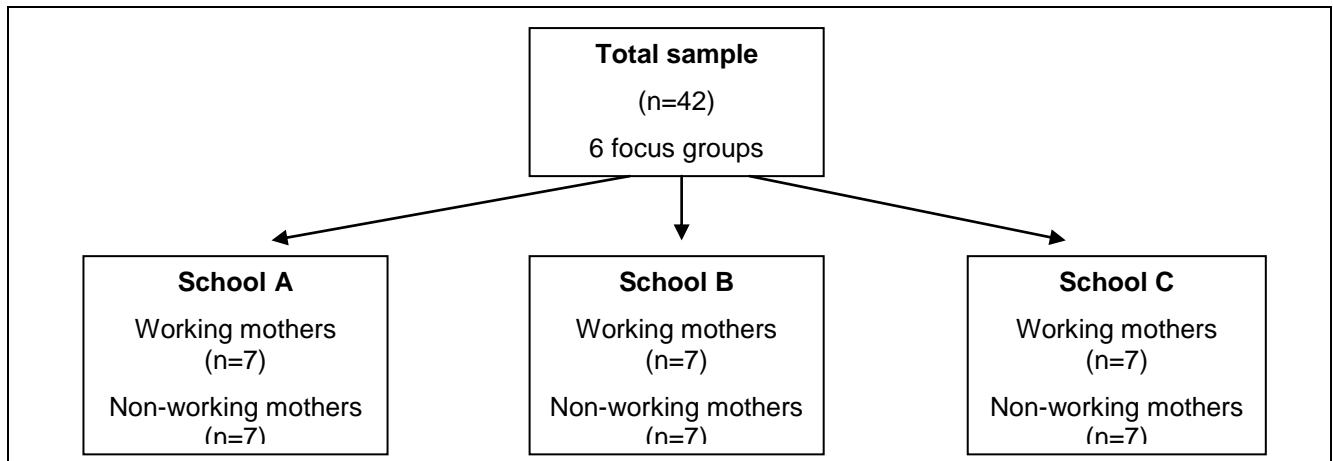


Figure 2.4: Diagrammatic depiction of expected sample size of focus groups (Phase 2)

2.7 INCLUSION AND EXCLUSION CRITERIA

2.7.1 INCLUSION CRITERIA FOR THE SCHOOLS

- Selected schools from the Metro North Education District that gave permission to participate in the study.

2.7.2 EXCLUSION CRITERIA FOR SCHOOLS

- Selected schools that did not give permission to participate in the study.

2.7.3 INCLUSION CRITERIA FOR THE QUESTIONNAIRES

- All mothers (biological, step- or foster mother) who voluntarily gave written, informed consent and were willing to participate in the study.
- Mothers (biological, step- or foster mother) who were primarily responsible for food purchasing and preparation in the household.

2.7.4 EXCLUSION CRITERIA FOR THE QUESTIONNAIRES

- Mothers who had children in primary school as well as in high school.
- Participants who could not understand and read Afrikaans, English or Xhosa.

2.7.5 INCLUSION CRITERIA FOR THE FOCUS GROUPS

- All mothers (biological, step- or foster mother) who voluntarily gave written, informed consent and were willing to participate in the focus group and have the discussion recorded.
- Mothers (biological, step- or foster mother) who were primarily responsible for food purchasing and food preparation in the household.

2.7.6 EXCLUSION CRITERIA FOR THE FOCUS GROUPS

- Mothers who had children in primary school as well as in high school
- Participants who did not understand Afrikaans, English or Xhosa

2.8 DATA COLLECTION

2.8.1 PREPARATION FOR THE STUDY

A letter (Addendum 1) to obtain permission to conduct the study was sent out to the Director of Education: Research, after the study was approved by the Human Research Ethics Committee (HREC), Faculty of Medicine and Health Sciences, Stellenbosch University. After permission was obtained from the Western Cape Education Department (WCED), letters (Addendum 2) were sent out to the principals of the selected schools via e-mail requesting permission to conduct the study at their schools. The researcher made follow-up phone calls to confirm that the schools received the e-mailed letter and then arranged individual meetings with the school principals to personally explain the purpose of the study to them.

The schools from quintile one and four that were randomly selected gave permission to conduct the study in the first round of the selection process but the researcher had to reselect seven times before a school from quintile five was willing to participate. Reasons for non-participation provided by school principals included that it was a very busy time of the year, other research was already conducted earlier in the year and that they did not want to overload the parents with additional forms.

2.8.2 DATA COLLECTION

Data collection started after consent was obtained by the HREC, the WCED and the school principals. Data collection took place from July 2014 – October 2014. The process of school selection and meetings with the school principals took place in July 2014. Data collection via self-administered questionnaires (phase 1) was conducted in August 2014, while focus group discussions (phase 2) were conducted during September 2014 and October 2014.

The methods followed for data collection namely self-administered questionnaires and focus group discussions, are discussed below.

2.8.3 DATA COLLECTION TOOLS

2.8.3.1 Quantitative data: Self-administered questionnaires (phase 1)

The mothers' knowledge regarding healthy food, attitude and practices and factors influencing food choice was investigated by means of a self-administered questionnaire. The questionnaire was developed in accordance with the study objectives and current literature.

A validated and reliable general nutrition knowledge questionnaire for adults as developed by Parmenter and Wardle and a nutrition knowledge questionnaire developed by Whati served as a guide when developing the questionnaire, in order to be aligned with the study objectives.^{101, 102}

Questionnaires consisted of the following sections as indicated below:

Section	Number and type of questions
Socio demographic section	9 closed questions
Section measuring nutrition knowledge	13 true, false or do not know questions
Section related to attitude	7 Likert scale statements (strongly disagree, disagree, agree and strongly agree)
Section related to practices	15 Likert scale statements (strongly disagree, disagree, agree and strongly agree) 2 closed questions 1 open-ended question
General questions regarding childhood obesity.	3 closed true, false or do not know questions
Question related to barriers	3 closed questions 4 Likert scale statements 1 open-ended question

The questionnaire included structured pre-coded questions as well as open-ended and closed questions. Questionnaires were made available in Afrikaans and English after random sampling of the schools were done. It was not necessary to translate questionnaires into isiXhosa as the randomly selected schools were only Afrikaans and English medium schools. The researcher also confirmed the language used by the school for communication with the school principal, before it was decided that there was no need to translate the questionnaires into isiXhosa.

2.8.3.2 Qualitative data: Focus group discussions (phase 2)

Focus group discussions were conducted to explore barriers to making healthy food choices. A focus group discussion guide (Addendum D and E) with questions and probes compiled by the researcher was used to guide the interviewer during the discussion. The discussion guide contained the following sections:

- Introduction to explain the procedure to the participants and to make them feel at ease.
- A separate discussion guide for employed and unemployed mothers was included in which the questions differed slightly.
- Ten questions were included to explore barriers to healthy eating. Questions explored the influence of knowledge, employment status, family preference, school tuck shops and barriers to making healthy food choices. The discussion was closed by asking participants if they want to add anything to the discussion. The researcher then ended the discussion with a summary of the main responses and discussion points.
- A list of probes for each question was included in the focus group discussion guide to help facilitate the discussion.
- A short observer's guide for the focus group discussion was included.

The observer was a 23 year old black qualified nutritionist. The observer was English literate. The researcher arranged a meeting with the observer to discuss her duties during the focus group discussions. The duties of the observer included managing the voice recordings and making sure that the discussion was recorded till the end. The observer also assisted with administrative tasks such as assisting with obtaining consent prior to the discussion. The researcher explained that she must make notes on the general interaction and dynamics of the group. She also had to make notes on non-verbal cues of participants such as nodding or shaking heads. Her role remained the same for all the focus group discussions and therefore standardization was not necessary between different focus groups.

2.8.4 PHASE ONE: SELF-ADMINISTERED QUESTIONNAIRES

The researcher arranged a meeting with the school principal to explain the research topic and process. During this discussion it was decided how many Afrikaans and English questionnaires should be photocopied for distribution. The method of questionnaire distribution was also discussed to ensure minimum disruption of the class and teacher's classroom routine. Thereafter, a suitable time and date was arranged to distribute the questionnaires at each school. The process of questionnaire distribution differed slightly between the three randomly selected schools. At School A and C (quintile one and five), the questionnaire distribution process as well as the subject inclusion and exclusion criteria was explained to the school principal and his/her secretary who then distributed the

questionnaires to the teachers. At School B (quintile four) the researcher met with the teachers of the selected classes personally and briefly explained the purpose of the research and which children should receive questionnaires according to the subject inclusion and exclusion criteria. The teachers were then handed the questionnaires for distribution to their pupils. The questionnaires and informed consent forms, placed in an open A4 envelope were given to teachers in packets of 30 and in the language of their choice. The informed consent forms were provided in duplicate. Participants could keep a duplicate of the consent form for their own reference. The teachers were instructed to keep and return envelopes that were not sent out, in cases where there were fewer than 30 children per class that met the study's inclusion criteria. The envelopes were not sealed on distribution to enable parents to seal them when returned to school. Pupils were asked to return the questionnaires within three days.

To remind participants to sign the consent form, a sticky note in neon colors with the words “please sign” was taped next to the place where a signature was required. Each envelope also had instructions on the front, stating when the questionnaire had to be returned as well as a reminder to mothers to sign the informed consent form.

Questionnaires were coded to identify the school they originated from as well as numbered for data capturing and checking purposes as seen in Table 2.3.

Table 2.3: Coding of questionnaires

School	Coding
School A	SM 1
School B	SM 4
School C	SM 5

Mothers could complete the anonymous, self-administered questionnaire voluntarily at home and were requested to return it to the school via their children in the sealed envelopes provided.

In an attempt to increase the response rate and to encourage mothers to complete the questionnaire, the researcher sourced sponsors to enable two lucky draws per school. Lucky Star and Future Life both sponsored a “goodie bag” consisting of some of their products. The total value of the combined sponsorship was approximately R200 per bag. This served as a gesture of gratitude for taking part in the study. Only mothers who provided their contact number on the tear-off slip were eligible for the lucky draw. Telephone numbers were only used for the purpose of recruiting focus group participants and to enable the lucky draw. Each school principal also received a “goodie bag” to thank them for their willingness to allow the research to be conducted at their school.

2.8.5 PHASE TWO: FOCUS GROUPS

Focus groups were conducted to obtain more information regarding mothers' perceptions regarding healthy food choices and barriers experienced when making healthy food choices.

The last page of the self-administered questionnaire (Addendum C) was an invitation to participate in a focus group discussion. The mothers could indicate their willingness to participate in the discussion by completing a tear-off slip on which they also had to indicate their employment status. This enabled the researcher to group mothers into working and non-working groups per school.

Once all the questionnaires were returned, the tear-off slips were sorted into two groups namely working and non-working mothers. Subsequently, the researcher contacted the school principal again to arrange a suitable date and time to conduct the focus group discussion at a suitable school-based venue. The researcher then randomly selected mothers from the list of tear-off slips and contacted them telephonically, inviting them to participate in the focus group discussion and informing them of the logistical details (time, date and place). The process of contacting the mothers was time consuming due to the fact that the phone call was not always answered, the mother was not available or the number did not exist. Therefore the researcher also used sms messages to try and recruit more participants instead of making initial contact via phone calls. If an individual then replied to the sms confirming their willingness to attend the focus group discussion, the researcher phoned them. If the mother was not interested in participating, the next telephone number was used until a required number of participants for each focus group were recruited. Telephone numbers were captured on the same spreadsheet used for data capturing. The researcher aimed to recruit at least seven to ten mothers per focus group factoring in that they might not attend on the arranged day.

The day before and the morning of the focus group discussion, a reminder sms was send to the sampled mothers to remind them of the focus group discussion, date, time and venue. Participants were also asked to confirm their attendance via sms but a very poor response resulted. Six focus group discussions were conducted each consisting of four to ten mothers per group. Focus group discussions were conducted in the language of choice, either Afrikaans or English or both. Two focus groups per school were conducted: one with working mothers and the other with non-working mothers as is illustrated in Figure 2.5.

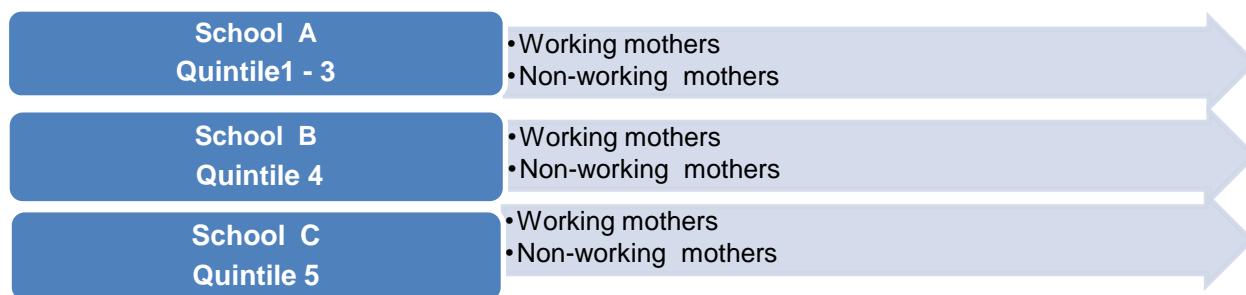


Figure 2.5: Compilation of the focus groups (n=6)

Focus group discussions with non-working mothers were conducted during school hours and those with working mothers after hours or on a Saturday. Focus group discussions took place at the school in a pre-arranged room or area that was quiet and comfortable and with minimum distractions. School-based venues were: staff tearoom (School A), school hall (School B) and an empty classroom (School C).

On the day of the discussion, the researcher introduced herself and the observer and gave a brief background regarding the research being conducted. Written, informed consent was obtained from all participants prior to taking part in the discussion as well as to ensure that they consented to the focus group discussion being voice recorded. The tape recorder was switched on when the discussion started and after informed consent was obtained. The researcher facilitated the discussions and the observer took notes pertaining to participants' interaction and contribution to the discussion. A pre-established list of questions and probes to guide the discussion and to make sure all points of importance was covered, was followed (Addendum N). Discussion time ranged between 45 and 60 minutes. Discussions ended when all questions were asked or when no new responses were given and data saturation took place. On completion of the discussion, the researcher gave a summary of the discussion that took place and made sure that the participants did not have any additional comments. Thereafter she thanked everyone for their participation. In addition, to express gratitude for participation in the focus group discussions, tea, coffee and muffins were served before and after each focus group discussion.

Figure 2.4 depicts the actual sample size of the conducted focus group discussions.

Table 2.4: Actual sample size of focus groups (n=6)

School	Recruited	Actual numbers of participants
School A working	10	10
School A non-working	6	6
School B working	6	6
School B non-working	7	6
School C working	6	4
School C non-working	6	5
Total number of participants in focus groups	41	37

2.9 QUALITY CONTROL

2.9.1 PILOT STUDY: SELF-ADMINISTERED QUESTIONNAIRES

To test the reliability and validity of the questionnaires and the process for the main study, a pilot study was conducted in August 2014 at two randomly selected non-participating schools, one from quintile one to three and the other from quintile four. Due to time and cost constraints, only one conveniently selected class per school was used for the pilot study. The school principals asked for a teacher to volunteer for his/her class to be used for the pilot study. One grade four class from quintile one and one grade three class from quintile four, both with 30 learners, were used for the pilot study. The questionnaires were distributed on a Tuesday and collected on the Friday of the same week.

As the procedure followed in the pilot study proved to be effective, the same procedure was used for the actual study.

2.9.2 PILOT STUDY: FOCUS GROUPS

One focus group was piloted with non-working mothers at the quintile 4 school. The researcher documented the duration of the focus group and also made sure that the procedure for obtaining consent and tape recording the discussion was optimal. The researcher checked the quality of the voice recording after completing the focus group discussions and evaluated whether all participants understood the consent form. Due to the small number of telephone numbers obtained from one class for the pilot study, only five mothers were invited to and reminded of the focus group discussion. However, on the day the pilot study was conducted only three mothers arrived. Nevertheless, the focus group discussion took place as it would have been unfair to the three participants who took the time and committed to attending the discussion. Subsequently none of the questions in the focus group discussion guide were changed.

2.9.3 FACE VALIDITY

Face validity refers to the extent to which the measure or question makes sense to those knowledgeable about the subject or to the interviewers that are familiar with the language and culture of participants. It is a subjective measure that cannot be analysed statistically, as it is in the eye of the observer.¹⁰³

During the pilot study face validity of the questionnaire was evaluated by the participants from the selected classes. Hence they were asked to comment on font size, length of the questionnaire, clarity of the instructions, comprehension of the questions, procedure and the time it took to complete the questionnaire. Feedback obtained from the pilot study was used to improve the face validity of the questionnaire. Almost all the participants found the questionnaire easy to understand and reported that it took between 10 and 20 minutes to complete. No changes were made to the questionnaire after

evaluation of face validity. The main problem identified was that some of the consent forms were not signed when returned and could therefore not be used for research purposes. Subsequently the researcher implemented extra measures for the main study such as the neon-coloured sticky notes inserted on the page where the participants had to sign informed consent. An instruction page was also pasted on the front of the enveloped reminding the parent to sign the consent forms.

2.9.4 CONTENT VALIDITY OF THE QUESTIONNAIRE

Content validity is a subjective measure that focuses on whether a particular measure (e.g., attitude) covers all dimensions present in the concept it is supposed to measure.¹⁰³ To ensure content validity the researcher asked a panel of three dietitians with expert knowledge on childhood obesity and purchasing behaviour to evaluate the questionnaires. They commented on and made recommendations regarding the relevance of the content, the level of understanding, the layout of the questionnaire and the appropriateness and clarity of the questionnaires for the target group.

One of the dietitians noted that the headings at each section in the questionnaire (knowledge, attitude, behaviour and barriers), should be omitted because it could influence the participants. Some grammatical adjustments and sentence construction changes were made in accordance with recommendations made by the dietitians. In terms of comprehension, words such as “presentation of a product” were changed to “the pictures of the product” and “nutritional information” was changed to the “information about the goodness of food”. In the demographic section the “not employed” option was changed to “not working currently”. It was also noted that in questions where a brand name or example of a product was listed, more options were given to the participant as opposed to only one. The panel agreed that the layout, font size and length of the questionnaire were appropriate. In addition, the panel also noted that the return slip section had to include the monetary value of the lucky draw instead of just stating a lucky draw.

2.9.5 INTERNAL VALIDITY

Internal validity refers to the extent to which a measure captures the concept it is intended to reflect among the sample of individuals being studied.¹⁰³ In this study, triangulation of data collection and analysis, voice recording of data and conducting the focus group discussions in the mother tongue of participants, was used to increase internal validity (credibility). Multiple research methods were used to promote cross-comparison and validation of results. The validity regarding the conclusion of one method of data collection such as focus groups are strengthened if confirmed by another such as participant observation.^{85,103}

2.9.6 RELIABILITY

Reliability refers to the extent to which a measurement process gives the same results when repeated under the same circumstances.⁸⁷

To determine the internal reliability of the questionnaire, data was analyzed statistically per construct using Cronbach's alpha coefficient. The latter is a statistical measurement of the amount of agreement among a set of different items making up a scale index.¹⁰³ Internal reliability is reflected in a numerical Cronbach alpha value ranging from 0 – 1. The closer to 1 the reliability coefficient is, the more reliable it is. A statistician of SU performed the reliability analyses. Two sections of the questionnaire could be analysed for reliability namely section three, pertaining to attitude and section four pertaining to practices of mothers. The Chronbach alpha score for attitude was very low with a value of 0.38. The reliability for questions pertaining to practices was better with a value of 0.64.

In qualitative studies, the researcher is the instrument in data collection and interpretation. Subjectivity and bias is thus a possible disadvantage.⁹⁴ Detailed record keeping and data analysis prevented possible researcher bias and subjectivity. Focus group transcriptions were checked and re-read several times by the researcher to ensure accuracy and reliability of the content.

2.10. ANALYSIS OF DATA

2.10.1 QUANTITATIVE DATA

MS Excel was used to capture data and STATISTICA version 12 (Stat Soft Inc. 2014) was used for data analysis (www.statsoft.com) by a statistician from Stellenbosch University who performed the statistical analyses. Questionnaires were checked for completeness and accuracy by the researcher by using the filter function of Microsoft Excel. This enabled the researcher to identify any outliers with data capturing. All questionnaires that had errors were checked.

Summary statistics were used to describe the characteristics of the study population. Distribution of variables were presented as histograms or frequency tables. Medians and means were used as the measure of central location for ordinal and continuous responses and standard deviations or quartiles as indicators of variation.

The relationship between continuous response variables and nominal input variables were analyzed using appropriate analysis of variance (ANOVA). To detect which groups (schools) differed significantly, a Bonferroni multiple comparisons procedure was done. When ordinal response variables were compared to nominal input variables non-parametric ANOVA-methods were used like the Kruskal-Wallis' test and Mann-Whitney's test.

The relationship between two nominal variables was investigated with contingency tables and likelihood ratio chi-square tests. If the response nominal variables can also be considered as ordinal,

then the non-parametric tests described above were more appropriate. However, it is sometimes more interpretable to report the responses as contingency tables as done with data pertaining to attitude and practices.

Chronbach's alphas were calculated for questions pertaining to practices and attitudes to estimate the internal reliability of the factors.

A p-value of less than 0.05 represented statistical significance in hypothesis testing and 95% confidence intervals were used to describe the estimation of unknown parameters.

The statements in the knowledge section of the questionnaire were analysed as follows. Do not know answers were analysed as false answers as this response is also indicative of a lack of knowledge. A correct answer was scored a one and a wrong answers a zero. An average percentage score was calculated for each question for the whole group and per school.

2.10.2 QUALITATIVE DATA

To analyse data a systematic approach to content analysis was performed by the researcher. Recorded data was meticulously transcribed verbatim by the researcher. Transcriptions and observation notes were the main source of data for analysis purposes. For quality control purposes the researcher read the transcriptions several times to ensure that the information was transcribed correctly. This enabled the researcher to become familiar with the data and get a sense of each discussion. Thereafter transcriptions were manually divided into themes derived from the primary objectives namely knowledge, attitude, practices and barriers. These themes were then organized into codes or categories. (Addendum N). Quotes pertaining to each theme were cut from the original text and copied to the most applicable category.⁹⁴ New emerging themes not directly related to the primary objectives were also deduced from the transcriptions. Throughout the coding process the quotes were also sub-divided into working and non-working mothers as well as different schools. Thereafter data was interpreted and differences between the different focus groups were investigated. The researcher took extra care to remain true to the data and reflect the participants' words or phrasing. Notes made by the observer were used to describe the group dynamics of the participants.

2.11. ETHICS AND LEGAL ASPECTS

2.11.1 ETHICS REVIEW COMMITTEE

Permission to perform the study was obtained from the Health Research Ethics Committee (HREC) of the Faculty of Medicine and Health Sciences, Stellenbosch University (Ethics reference number: S13/10/210). The study was conducted according with the International Declaration of Helsinki and the International Council of Human Rights and Medical Research Council guidelines.

2.11.2 AUTHORISATION

Permission to conduct the study was obtained from the WCED and the principals of the three primary schools surveyed. (Appendix)

2.11.3 INFORMED CONSENT

Participation in this study was voluntary. Separate informed consent forms in the subjects' language of choice were completed by focus group participants as well as mothers who completed the self-administered questionnaires. Questionnaires that were not signed were excluded from the data capturing process. Written consent was also obtained from focus group participants to tape record the discussion.

2.11.4 PARTICIPANT CONFIDENTIALITY

Freedom of participation was exercised. Participants had to give consent before participating in the study and could withdraw at any point without any consequences. All data was treated as confidential. Anonymity was ensured by allocating a code and number to each questionnaire to identify each school for data processing and capturing purposes. Hence the names of the schools remained anonymous and confidential at all stages of the study and during reporting of results. Data gathered through self-administered questionnaires were generic and could therefore not be traced back to the participants. Names of focus group participants remained anonymous during the recording of the interviews. They did not identify themselves during the focus group discussions as this was not deemed necessary for data analysis purposes. Participants were informed that the data collected would be used for scientific publications or presentations only and that no identities would be revealed. Voice recordings were destroyed after completion of the study.

2.12. REPORT

A copy of the results of the study will be given to the WCED.

Participating schools will be informed of the results and a presentation with key findings will be arranged. The researcher aims to publish one article in a scientific peer reviewed journal. Results will also be presented at the Annual Academic Year day of the Faculty of Medicine and Health Sciences of Stellenbosch University.

CHAPTER 3

RESULTS

3.1 INTRODUCTION

The main aim of this study was to investigate the factors influencing the food choices of mothers with primary school children in the Metro North Education District of the Western Cape Province by comparing the results obtained from three schools from different national quintiles that were randomly sampled. The primary objectives of the study were to determine the knowledge, attitude and practices of mothers regarding healthy eating, the factors and barriers influencing food choices of mothers as well as a mother's basic knowledge of childhood obesity. The secondary objectives aimed to investigate the impact that a mother's employment and socio-economic status has on food choice by comparing data from working and non-working mothers and the three different schools representing three different national quintiles.

To obtain the above information, two data collection tools were used namely: (i) self-administered questionnaires and (ii) focus group discussions.

This chapter follows a systematic approach to present the results of 476 self-administered questionnaires and six focus group discussions (n=37). Qualitative and quantitative data are integrated and presented according the study objectives.

For reporting purposes, the schools from different quintiles are referred to as School A (quintile 1-3), School B (quintile 4) and School C (quintile 5). For quotes extracted from the focus group discussion, participants from different schools and employment status are identified via a code system indicating their employment status namely working (w) or non-working (nw) and the school they were sampled from namely school A , B or C. In accordance with the above, a working mother from school C would be coded as SCw.

Working mothers included all mothers who indicated that they work, regardless of the amount of hours worked per week. Non-working mothers included all mothers who indicated that they were not working currently. Only 22 mothers indicated that they work less than 10 hours per week and only 33 mothers indicated that they work part time (25 hours per week). Due to the small number of participants who marked these two options in the self-administered questionnaire they were included in the working mother group.

3.1.1 RESPONSE RATE FROM SELF-ADMINISTERED QUESTIONNAIRES

A total of 950 questionnaires were sent out to prospective participants from all three schools. An overall response rate of 50% (n=476) was obtained. School A had the highest response rate (53%), followed by school B (50%) and school C (46%). Three hundred and fifteen questionnaires were not sent back from the schools, 59 questionnaires were returned but not completed and 70 questionnaires were returned without consent forms. After data capturing and in consultation with a

statistician, it was decided to exclude another 30 questionnaires due to some being completed by fathers and some were only partially completed. However, the response rate in this study was good when compared to a general response rate of 25% as reported in the literature.⁹¹

3.2 PARTICIPANT SOCIO-DEMOGRAPHIC CHARACTERISTICS

The self-administered questionnaire included a section surveying participants' socio-demographic characteristics. These results are depicted in Table 3.1. Slight variation in the total sample size for different sections and questions in the questionnaire can be explained by the fact that not all participants always supplied an answer to all the information and questions asked.

Table 3.1: Socio-demographic information of participants (N=476)

	All schools	School A (Quintile 1-3) n (%)	School B (Quintile 4) n (%)	School C (Quintile 5) n (%)	p-value	
Relationship to child (n, %)						
	(N=476)	(n=202)	(n=147)	(n=127)		
Mother	447 (94)	188 (42)	133 (29.7)	126 (28)		
Grandmother	8 (2)	5 (62.5)	2 (25)	1 (12.5)		
Foster mother	21 (4)	9 (42.8)	12 (57.1)	0		
Ethnicity (n, %)						
	(N=475)	(n=202)	(n=146)	(n=127)		
Black	52 (11)	21 (10.4)	17 (12)	14 (11)		
Coloured	406 (85)	180 (89.1))	117 (80)	109 (86)		
Indian	4 (0.1)	1 (0.5)	0 (0.0)	3 (2.4)		
White	13 (3)	0 (0.0)	12 (8)	1 (1.0)		
Employment status (n, %)						
	(N=467)	(n=198)	(n=143)	(n=126)		
Working	316 (68)	105 (53)	109 (76.6)	102 (80.9)		
Not working	151 (32)	93 (46.9)	34 (23.7)	24 (19)		
Level of education (n, %)					0.00*	
	(N=470)	(n= 198)	(n= 145)	(n= 127)		
Grade 7 or lower	60 (13)	52 (26.2)	8 (5.5)	0		
Grade 8 -11	154 (33)	108 (54.5)	37 (25.2)	9 (7.0)		
Grade 12	146 (31)	32 (16.1)	69 (47.5)	45 (35.4)		
Diploma or higher degree	110 (23)	6 (3.03)	31 (21.3)	73 (57.4)		
Level of income (n, %)						
	(N=435)	(n=181)	(n=133)	(n=121)		
Less than R1000	76 (17)	65 (35.9)	11 (8.3)	0		0.00*
R1001 – R2500	71 (16)	58 (32.0)	13 (9.8)	0		
R2501 – R3500	33 (8)	26 (14.3)	7 (5.3)	0		
R3501 – R5500	47 (11)	19 (10.5)	19 (14.3)	9 (7.4)		
R5501 – R9000	44 (10)	11 (6.1)	21 (15.8)	12 (9.9)		
R9001 – R12500	39 (9)	2 (1.1)	21 (15.8)	16 (13.2)		
R12501 – R16500	38 (9)	0	14 (10.5)	24 (19.3)		
More than R16500	87 (20)	0	27 (20.3)	60 (45.6)		

*Chi-square statistics indicate statistically significant difference if $p < 0.05$

From Table 3.1 it can be seen that there was a highly significant difference between the education level and income level of the participants from different schools presenting different quintiles. A

positive association can be seen with level of income, level of education and school quintile level where both income and level of education are higher in the higher quintile group (School C).

An inverse relationship was observed between school quintile and level of education. Sixty percent (n=73) of mothers from School C (n= 121) had a post secondary school education, compared to only 3% (n=6) of mothers from School A (n= 198). Eighty percent (n=160) of mothers from School A did not have matric. In School B (n=145) almost half (n= 69, 47%) of mothers had matric while 21% (n=31) were in possession of a higher degree or diploma.

The largest percentage of the study population (n=316, 69.6 %) was working mothers compared to 31.3% (n=151) that were non-working. More than eighty percent (n=102) of mothers from School C were employed either full -or part time compared to 53% (n=105) of mothers from School A. The unemployment rate in School A was the highest at 46.9% (n=93). The mean age of participants was 37.45 (SD 7.07).

3.3 BACKGROUND INFORMATION: FOCUS GROUP DISCUSSIONS (INTERVIEWER AND PARTICIPANTS)

The researcher was a 40 year old white female with no previous experience with conducting focus group discussions. The researcher completed an epidemiology module prior to conducting the study which included the basic principles of qualitative research and ensured basic theoretical knowledge. The observer was a 23 year old black female. Her duties included observational note taking and recording of the focus group discussion. She also assisted with the process of obtaining consent from the participants. Prior to the discussion the researcher was anxious not knowing if all the participants would be present for the focus group discussion. Once the focus group started the researcher was relaxed and engaged freely with the participants. One concern could have been that it was the first time that the researcher conducted a focus group discussion and did not know what to expect, which made her feel slightly unsure before the start of the first focus group discussion.

Focus group participants were recruited from the list of telephone numbers obtained from the tear-off slips at the end of the quantitative questionnaire. Participants were recruited from a list of three hundred and thirty one telephone numbers, (218 working mothers and 133 non-working mothers). Thirty seven participants took part in the focus group discussions, 17 were working mothers and 20 non-working mothers. Most of the participants were coloured and black mothers. No white participants were recruited via the random selection process. Participants could all understand either Afrikaans or English. The mean age of participants was 36 years. Focus group participants did not know each other but some were familiar with one another. This could be expected as they all had children in the same school.

Focus group participants actively engaged in the discussions and most participants were relaxed. Participants ranged from being very outspoken to being passive and introverted. The interviewer tried to include the quieter participants by specifically asking their opinions at times to ensure that they also had a chance to give their opinion.

The quieter participants confirmed agreement or disagreement by nodding or shaking their heads to convey their attitude or feelings towards specific questions. Non-working mothers seemed more relaxed and chatted and made jokes prior to the start of the discussion compared to working mothers. Working mothers from school A and B were skeptical and uncomfortable and almost scared to answer questions at the beginning of the discussion but became more relaxed after the first few questions. The focus group discussion with working mothers of School C was conducted after hours at the school. Mothers seemed tired after the day's work, but participated in the group discussion freely. One of the participants was more interested in gaining information on the diet of her daughter and the interviewer found it challenging to keep the discussion focused. Overall the interaction of participants was satisfactory for all six focus group discussions. Participants enjoyed and appreciated the tea and muffins that was served.

3.4 NUTRITION KNOWLEDGE OF PARTICIPANTS

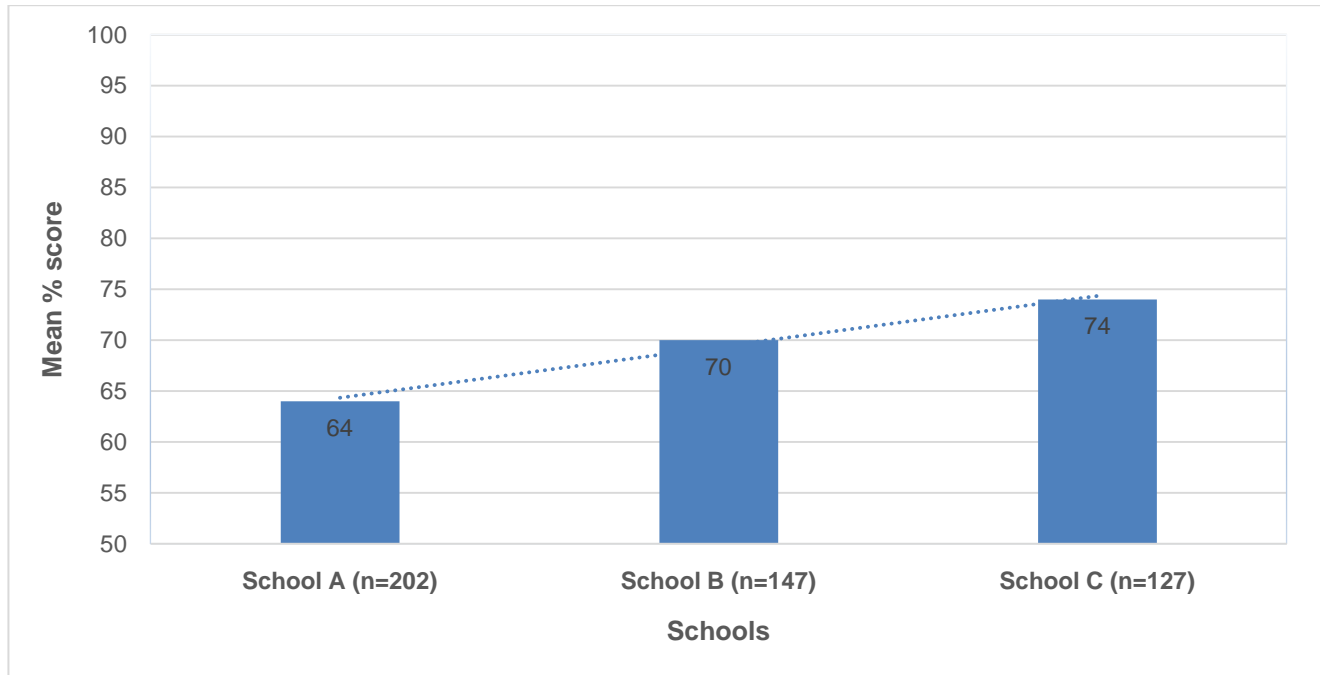
In order to determine the nutrition knowledge, mothers completed a self-administered questionnaire consisting of thirteen closed statements with answer options including: (i) true; (ii) false or (iii) do not know. The results of the nutrition-related knowledge statements are summarized in Table 3.2. In addition, some knowledge gaps were also identified during the focus group discussions and will be discussed simultaneously with the results of the self-administered questionnaire.

Table 3.2: Percentage score of nutrition knowledge questions answered correctly. (N=476)

Statement	All schools (N=476)		School A (n=202)		School B (n=147)		School C (n=127)	
	N	%	n	%	n	%	n	%
White bread is healthier when toasted	197	41.3	52	25.7	68	46.3	77	60.6
Growing children need a lot of sugar	315	66.1	90	44.5	115	78.2	110	86.6
Children need to eat fruit and vegetables daily	459	96.4	193	95.5	143	97.2	123	96.8
If children eat a healthy diet there is no need for them to do exercise	430	90.3	167	82.6	138	93.8	125	98.4
A glass of fruit juice is healthier than a fresh fruit	365	76.6	130	64.3	122	82.9	113	88.9
Fruit and vegetables are fat free items	309	64.9	146	72.2	87	59.8	76	59.0
Red meat is a good source of iron	311	65.3	118	58.4	100	73.2	93	73.2
Baked beans are a good source of protein	361	75.8	153	75.7	106	80.3	102	80.3
Fried eggs are healthier than boiled eggs	440	92.4	186	92.0	134	94.4	120	94.4
Low fat products contain less than 3g fat per 100g	178	37.3	84	41.5	53	32.2	41	32.2
Gas cool drinks are healthy drinks	456	95.8	188	93.0	144	97.6	124	97.6
Brown sugar and honey are healthier than white sugar	22	46.2	11	54.4	3	20.4	8	62.9
Coffee creamers are just as healthy as milk	406	85.2	164	81.18	131	89.1	111	87.4

The questions with the lowest mean score for the group was “White bread is healthier when it is toasted”, ‘Low fat products contain less than 3g fat per 100g” and “Brown sugar and honey are healthier than white sugar”.

Figure 3.1 illustrates a comparison of the mean nutrition knowledge score of the mothers from the three schools. There was a statistically significant difference ($p < 0.01$) in the nutrition knowledge of mothers from different schools.



*Kruskal-Wallis test indicates statistically significance difference between different schools, $p < 0.01$

Figure 3.1: Nutrition knowledge of mothers from different schools (N=476)

The nutrition knowledge of mothers' from School A was significantly lower ($p < 0.01$) compared to mothers from School B and C. However, the nutrition knowledge between mothers from School B and C did not differ significantly. The mean nutrition knowledge score for the whole group (N=476) was 68.6% (0.68 ± 0.13). School A (n=202) had a mean score of 64.0% (0.64 ± 0.14), School B (n=147) scored 70.3 % (0.70 ± 0.13) and School C (n= 127) had a score of 74.0% (0.74 ± 0.12).

A statistically significant difference ($p = 0.03$) between the mean health knowledge score of working (n=316) versus non-working mothers (n=151) was found. Working mothers achieved a higher score (69.7 ± 0.14) compared to non-working mothers (67.1 ± 0.12) when the Mann-Whitney test was performed.

The purpose of the focus group discussions was to determine any other barriers to healthy eating that may exist. During the discussions some misperceptions regarding healthy food emerged that could be

interpreted as a barrier to healthy eating. These misperceptions were more prevalent among mothers from School A and B, regardless of their employment status. No specific theme pertaining to nutrition knowledge was identified from focus group discussions with mothers from School C. However, the main misperceptions among mothers from School A and B were related to the type of sugar to use and the type of cool drink to buy.

SAnw: "Brown sugar is healthier than white sugar. I have to buy it for my kids' health..."

SBNw: "... but there is also lots of sugar in it, but you can dilute it with ice, it absorbs the sugar."

Mothers from School B were confused regarding which cool drinks are healthier for their children. They seem to be aware of the high sugar content of fizzy drinks and therefore opted for a cool drink concentrate that can be diluted with water such as Oros when shopping. Mothers also referred to the gas in fizzy drinks that makes it unhealthy, thereby placing less emphasis on the high sugar content. Participants knew that water is a healthier option but agreed that it is challenging to get children to drink water because they do not prefer it. They were of the opinion that diluted cool drink concentrates are an alternative to drinking water as it is mixed with water.

During the focus group discussions the question was asked whether it would make a difference to their food choices if they knew more about healthy food. Mothers from School A thought that it would make a difference to their food choice if they had more nutrition knowledge. Mothers from School B and C generally disagreed and said that price and what the children want, will also have an influence.

SAnw: "if I knew more I would choose better, but if you do not know you are not going to do it."

SBw: "it's about what you can afford but if you know more about the health risks you would steer away from it."

Mothers from School C had a stronger opinion on this question regarding the influence of knowledge on their food choices. They explained that sometimes you buy something out of habit or tradition and mostly because you know the children will eat it. One mother said that even though you do not always apply the knowledge, it's valuable to have knowledge because it assists with food purchasing decisions when needed.

SCw: "As parents we have to give the correct guidance to our kids, so knowledge is good, we keep it at the back of our mind, we buy what our kids want but we also think of what we know and apply, at the end of day it can be harmful to our kids."

3.5 ATTITUDE OF MOTHERS REGARDING HEALTHY EATING

One of the primary study objectives of the study was to determine the attitude of mothers towards healthy eating. A secondary objective was to determine if socio-economic status and employment status influence mothers' attitude towards healthy eating. To test the attitude of mothers pertaining to healthy eating, seven Likert scale questions were included in the questionnaires. Each question was presented as a statement. Participants could indicate their attitude towards each statement by choosing one option on a four point Likert scale. Options included: (i) strongly disagree; (ii) disagree; (iii) agree and (iv) strongly agree.

3.5.1 ATTITUDE TOWARDS HEALTHY EATING AS DEDUCED FROM THE SELF-ADMINISTERED QUESTIONNAIRES

Table 3.3 to Table 3.9 summarizes the results of the seven statements pertaining to the attitude of mothers towards healthy eating. Each table depicts a comparison between the three different schools as well as a comparison between the employment status of mothers.

Table 3.3: "A child that is not overweight can eat sweets and chocolate daily without developing health problems" (N=474)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=201	n	97	83	16	5	0.0005*
	%	48.3	41.3	7.9	2.5	
School B n=146	n	82	58	6	0	
	%	56.2	39.7	4.1	0	
School C n=127	n	85	38	1	3	
	%	66.9	29.9	0.8	2.4	
Comparisons between responses of mothers with different employment status (N=468)						
Non-working n=151	n	85	53	12	1	0.112*
	%	59.3	35.1	7.9	0.6	
Working n=317	n	176	123	11	7	
	%	55.1	39.2	3.5	2.2	

Chi-square statistics indicate statistically significant differences if $p < 0.05$

The majority of the participants strongly disagreed ($n=264$, 55.6%) or disagreed ($n=180$, 37.9%) with this statement. However, a statistically significant difference ($p=0.0005$) was found between mothers from the different schools surveyed. The opinions of mothers from School C differed significantly from School A and B. More mothers from School C strongly disagreed with the statement.

No statistically significant difference between the responses of working and non-working mothers was found.

Table 3.4: “My eating habits have a direct influence on my child’s eating habits”(N=467)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=199	n	12	38	113	36	0.001 [*]
	%	6.0	19.1	56.8	18.0	
School B n=146	n	4	12	89	41	
	%	2.7	8.2	60.9	28.01	
School C n=126	n	4	10	59	53	
	%	3.2	7.9	46.8	42.1	
Comparisons between responses of mothers with different employment status (N=462)						
Non-working n=149	n	6	22	88	33	0.29
	%	4.0	14.7	59.1	22.2	
Working n=313	n	14	36	169	94	
	%	4.5	11.5	53.9	30.1	

Chi-square statistics indicate statistically significant differences if $p < 0.05$

There was a statistically significant difference ($p=0.001$) in the opinions of mothers from School B and C compared to mothers from School A with regards to the influence that their eating habits have on the eating habits of their children. A combined 83% ($n=391$) of participants from the total sample agreed or strongly agreed with the statement.

There was no significant difference in the attitude of working and non-working mothers towards this statement.

Table 3.5: “It is better to eat a packet of chips than to eat nothing at all”(N=467)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=199	n	24	37	125	13	0.0001*
	%	12.1	18.6	62.8	6.5	
School B n=142	n	15	48	77	2	
	%	10.6	33.8	54.2	1.4	
School C n=126	n	22	52	47	5	
	%	17.5	41.3	37.3	3.9	
Comparisons between responses of mothers with different employment status (N=458)						
Non-working n=148	n	16	37	90	5	0.14*
	%	10.8	25.0	60.8	3.4	
Working n=310	n	45	98	153	14	
	%	14.5	31.6	49.4	4.5	

*Chi-square statistics indicate statistically significant differences if $p < 0.05$

For the whole group slightly more than half ($n=249$, 51.4%) of the participants agreed with the statement. There was a statistically significant difference ($p=0.0001$) between the responses of mothers from School A and School C with regards to their attitude to the above statement. More

mothers from School C disagreed (n=52, 41.3%) and strongly disagreed (n=22, 17.5%) with the statement compared to 18.6% (n=37) and 33.8% (n=48) of mothers from School A and B respectively. The employment status of mothers had no influence on their opinion towards this statement.

Table 3.6: “If my child partakes in school sport I am less concerned about his/her diet”(N=468)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=171	n	30	104	25	12	0.05*
	%	29.9	51.7	12.4	5.9	
School B n=144	n	44	84	14	2	
	%	30.6	58.3	9.7	1.4	
School C n=123	n	36	78	7	2	
	%	29.3	63.4	5.9	1.6	
Comparisons between responses of mothers with different employment status (N=459)						
Non-working n=149	n	42	82	18	7	0.42
	%	28.2	55.0	12.1	4.7	
Working n=310	n	94	181	27	8	
	%	30.3	58.4	8.7	2.6	

*Chi-square statistics indicate statistically significant differences if $p < 0.05$

A significant difference ($p=0.05$) in the responses of mothers from different schools were found. It is noteworthy that for the whole group 56.8% (n=266) of mothers disagreed with this statement and 23% (n=110) strongly disagreed with the statement. No statistically significant difference ($p=0.42$) was observed between working and non-working mothers.

Table 3.7: “Preparing healthy meals is more expensive”(N=470)

		Strongly disagree	Disagree	Agree	Strongly agree	p value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=199	n	44	77	59	19	0.917
	%	22.1	38.9	29.6	9.5	
School B n=144	n	32	56	44	12	
	%	22.2	38.9	30.6	8.3	
School C n=127	n	22	48	44	13	
	%	17.3	37.8	34.6	10.3	
Comparisons between responses of mothers with different employment status (N=461)						
Non-working n=148	n	33	54	44	17	0.55*
	%	22.3	36.5	29.7	11.5	
Working n=313	n	60	126	101	26	
	%	19.2	40.3	32.3	8.3	

Chi-square statistics does not indicate statistically significant difference if $p > 0.05$

There were no statistically significant differences between mothers from the different schools. Of all the participants a combined 59% (n=279) disagreed or strongly disagreed with the statement indicating that most participants felt that it is not more expensive to prepare healthy meals.

No statistical significant difference ($p=0.55$) was observed between working and non-working mothers with regards to this statement.

Table 3.8: “It is the responsibility of the school to teach our children about healthy eating habits”(N=474)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=202	n	66	69	51	16	0.002*
	%	32.7	34.1	25.3	7.9	
School B n =145	n	48	73	17	7	
	%	33.1	50.3	11.7	4.8	
School C n=127	n	44	68	14	1	
	%	34.7	53.5	11.0	0.7	
Comparisons between responses of mothers with different employment status (N=465)						
Non working n=151	n	48	53	42	8	0.0005*
	%	31.79	35.10	27.81	5.3	
Working n=314	n	107	153	39	15	
	%	34.08	48.73	12.42	4.8	

Chi-square statistics indicate statistically significant difference if $p>0.05$

There was a statistically significant difference ($p=0.002$) between responses towards this statement from mothers from different schools. Bonferoni multiple comparison procedures identified the significant difference between responses of mothers from School A and C, but not between the responses of mothers from School B and C. It is interesting to note that a larger percentage of mothers from School B and C disagreed ($n=73$, 50.3% and $n=68$, 53.5%) and strongly disagreed ($n=48$, 33.1% and $n=44$, 34.7%) with this statement compared to mothers from School A ($n=69$, 34% and $n=66$, 32.7%).

Significantly more working mothers disagreed with the statement. A combined 33% of non-working mothers ($n=50$) agreed or strongly agreed that it is the responsibility of the school to teach children about healthy eating compared to 17% of working mothers ($n=54$).

Table 3.9: “The messages through TV and radio influence my food choice”(N=473)

		Strongly disagree	Disagree	Agree	Strongly agree	p-value
Comparison between the responses of mothers from the three schools representing different national quintiles						
School A n=201	n	26	59	94	22	0.26*
	%	12.9	29.4	46.7	10.9	
School B n=145	n	10	50	74	11	
	%	6.9	34.5	51.0	7.9	
School C n=127	n	9	48	57	13	
	%	7.1	37.8	44.9	10.2	
Comparisons between responses of mothers with different employment status (N=464)						
Non-working n=150	n	16	50	67	17	0.78*
	%	10.7	33.3	44.6	11.3	
Working n=314	n	28	105	152	29	
	%	8.9	33.4	48.4	9.2	

*Chi-square statistics does not indicate statistically significant difference if $p > 0.05$

No statistical significant difference ($p=0.26$) was found between mothers from different schools with regards to the statement that media messages influence their food choice. For the whole group, more than half of all the mothers agreed ($n= 225$, 47.5%) and strongly agreed ($n=46$, 10.7%) that media messages have an influence on their food choice with the highest percentage combined score from mothers of School B ($n= 85$, 58.6%).

No statistical significant difference was observed between working and non-working mothers.

3.5.2 RESULTS FROM FOCUS GROUPS RELATED TO ATTITUDE OF MOTHERS REGARDING HEALTHY EATING

During the focus group discussions some themes related to attitude towards healthy food and healthy eating emerged. These themes are discussed below.

Role of the parent

Mothers were asked how they feel and what their thoughts were when they see an overweight child. They agreed that the child's parents are to blame. With the exception of one participant, all mothers agreed that the example they set for their children with regard to eating habits are important and influence the eating habits of their children. One mother from School B said that she buys fizzy cool drink for herself but the children may not drink it. The rest of the participants reacted strongly towards her response and were of the opinion that you cannot expect the children to follow a set of rules which is different to that of the parents. Mothers agreed that you cannot expect your child to do the right thing or make healthy choices if you as a parent do not set an example.

SCnw: “I think the kids look at us and what we do. Most of the times we want them to do the right thing but we do the opposite. So lead by example.”

SCnw: "I think if the parents eat vegetables, the kids will follow."

Some mothers from School A and C also referred to the amount of food given or the portion sizes offered to their children. They were of the opinion that the parent must be able to tell the child that "they had enough".

SAnw: "...those kids (overweight) do not eat right. The mother must see to it that the child eats correct."

The results obtained from the focus groups concur with the results obtained from the questionnaires that most mothers agreed that their eating habits influence their children's eating habits.

Tuck shops at school

The attitude of mothers pertaining to tuck shops differed between working and non-working mothers. All mothers agreed that tuck shops sell mostly unhealthy food such as pies and samoosas. Working mothers however, were less concerned about the unhealthy options sold at the tuck shops and explained that it is convenient to know there is a back-up option. They also agreed that it makes their life a lot easier, especially if they did not have time to go shopping after work to buy items for a lunch box. Giving the child tuck shop money saves time and takes some of the pressure off working mothers.

SBw: "I usually put in lunch and give them money. He is in the aftercare and always complains that he is hungry so I am glad there is something for him. At least they do not go hungry even if it is unhealthy".

Mothers from School A indicated that there are no tuck shops at their school but as an alternative, informal vendors sell items during breaks outside the school fences. The items they sell are mostly unhealthy, but are cheap such as chips and sweets. When asked whether the fact that unhealthy food is sold to their children concerns them, all mothers from School A agreed that it is of no concern to them.

SAnw: "It is something for them (the vendors) too. Most of the mummies that sell stuff are unemployed so it is an income for them too."

This information corresponds with data generated by the questionnaire where more mothers from School A and B agreed that it is better to eat a packet of chips than to eat nothing at all, indicating that the healthfulness of a product was of a lesser concern to them. During the focus group discussions, mothers from School C recognised the fact that they do not always know what their children buy at the tuck shop and this raised concern. However, they did not have a solution for this concern apart from asking the tuck shop to sell healthier food options.

School sport and activity

During the focus group discussions, mothers were asked how they feel about sport activities offered at school and what their opinion was regarding children's' participation in school sport.

Although most mothers seemed aware of the advantages or importance of daily exercise, working mothers had the strongest opinion to this question. They explained that if you work, the logistical arrangements regarding transport of your children to and from sporting activities makes it very difficult for children to participate in extramural activities. They also explained that one can make use of the aftercare facility, but at an additional cost that can not always be afforded. Sometimes sport matches are on Saturdays and attending the matches on weekends was also not ideal as this was seen as the day when all the work around the house must be done and time is limited.

SBw: "The school does not supply transport, the parents must make their own arrangements (for their children) to be picked up or dropped off. You can't tell the work every day that you have to leave at 14h00 to go watch sport."

Non-working mothers from School B and C pointed out that some children do not enjoy school sport and that one must find other ways of increasing their physical activity. It seemed that because they had more spare time to spend with their children, they are able to use alternative ways of increasing their physical activity such as walking before or after supper time. One non-working mother explained as follows:

SCnw: "My kids do not like sport. I started Zumba (a dance fitness program), so that is how I encourage them. They do the Zumba with me, or we take a walk in the evening or even X-box."

School A mothers indicated that there is not much sport offered at the school, but they were not concerned, because they felt their kids are very active in the afternoons, running and playing around in the neighbourhood. One mother from school A mentioned that she has a concern about the safety of her children in their neighbourhood and does not allow them to play outside.

3.6 PRACTICES OF MOTHERS REGARDING HEALTHY EATING

One of the primary objectives of the study was to determine the practices of mothers regarding food choice and healthy eating. A secondary objective was to determine if socio-economic status and employment status influenced mother's attitude towards these factors. To explore the practices of mothers pertaining to healthy eating, twelve Likert scale questions were included in the questionnaires. Each question was presented as a statement. Participants could indicate their attitude towards each statement by choosing one option on a four point Likert scale. Options included: (i) strongly disagree; (ii) disagree; (iii) agree; and (iv) strongly agree.

3.6.1: PRACTICES OF MOTHERS REGARDING HEALTHY FOOD CHOICES

A summary of participant responses to each question is presented in Table 3.10. The table depicts a comparison of the mothers' responses to each question for the total sample and the three different schools. The most prevalent responses to each question for the whole group are shaded (Table 3.10).

Table 3.10: Summary of results pertaining to practices of mothers from different schools regarding food choices

Statement	School	n	Strongly Disagree		Disagree		Agree		Strongly agree		p-value
			n	%	n	%	n	%	n	%	
I read food labels to help me choose the healthiest options	A	199	9	4.5	55	27.6	109	54.8	26	13.1	0.26
	B	147	6	4.1	48	32.6	81	55.1	12	8.2	
	C	127	0	0	53	41.7	62	48.8	12	9.5	
	Total N	473	15	3.2	156	33.0	252	53.3	50	10.5	
I would rather choose a product if it is labeled low fat	A	198	7	3.5	58	29.3	119	60.1	14	7.0	0.03 [#]
	B	145	4	2.7	68	46.9	62	42.7	11	7.6	
	C	126	3	2.4	54	42.8	60	47.6	9	7.1	
	Total N	469	14	3.0	180	38.4	241	51.4	34	7.2	
I use oil regularly when I prepare meals	A	199	20	10.0	54	27.1	114	57.3	11	5.5	0.02 [#]
	B	147	16	10.8	54	36.7	70	47.6	7	4.8	
	C	126	12	9.5	58	46.0	52	41.3	4	3.2	
	Total N	472	48	10.2	166	35.2	236	50.0	22	4.0	
I add sugar and margarine to my vegetables to make it tastier	A	201	15	7.5	55	27.3	121	60.2	10	4.9	0.01 [#]
	B	147	18	12.2	52	35.3	75	51.0	2	1.3	
	C	126	13	10.3	48	38.1	58	46.0	7	5.5	
	Total N	474	46	9.7	155	32.7	254	53.6	19	4.0	
I buy the food my children eat even if it is not the healthiest	A	198	19	9.6	85	42.9	87	43.6	7	3.5	0.68
	B	147	17	11.5	65	44.2	61	41.5	4	2.7	
	C	125	13	10.4	50	40.0	59	41.5	3	2.7	
	Total N	470	49	10.4	200	42.6	207	44.0	14	2.9	
I don't buy vegetables: my children won't eat them	A	200	73	36.5	106	53.0	21	10.5	0	0	0.81
	B	146	50	34.2	81	55.5	14	9.6	1	0.7	
	C	127	47	37.0	70	55.1	10	7.8	0	0	
	Total N	473	170	36.0	257	54.3	45	9.5	1	0.00	
If the package of a product looks pretty I'll choose that product	A	200	61	30.5	109	54.5	26	13.0	4	2.0	0.58
	B	146	40	27.4	88	60.2	16	10.9	2	1.3	
	C	126	43	34.1	68	53.9	12	9.5	3	2.3	
	Total N	472	144	30.5	265	56.1	54	11.4	9	1.9	
I pack a lunch box and give tuck shop money	A	202	29	14.3	100	49.5	23	11.4	50	24.8	0.06
	B	145	22	15.1	80	55.2	30	20.7	13	9.0	
	C	127	21	16.5	71	55.9	25	19.7	10	7.9	
	Total N	474	72	15.2	251	53.0	78	16.4	73	15.4	

Summary of results pertaining to practices of mothers from different schools regarding food choices (continued)

Statement	School	n	Strongly Disagree		Disagree		Agree		Strongly agree		p-value
I reward my children with sweets and chocolates	A	199	40	20.1	83	41.7	69	34.6	7	3.5	0.45
	B	145	22	15.1	58	40.0	63	43.4	2	1.3	
	C	202	22	17.3	56	44.1	45	35.4	4	3.1	
	Total N	471	84	17.8	197	41.8	177	37.6	13	2.7	
I buy fizzy cool drink because it is cheaper than fruit juice	A	202	48	23.7	101	50.0	48	23.7	5	2.4	0.1
	B	146	39	26.7	72	49.3	35	24.0	0	0.0	
	C	127	37	29.1	71	55.9	18	14.1	1	0.8	
	Total N	475	124	26.1	244	51.3	101	21.3	6	1.2	
I do not really know how to prepare healthy meals	A	184	64	34.8	93	50.5	24	13.0	3	1.6	0.02 [#]
	B	138	49	35.5	75	54.5	12	8.7	2	1.4	
	C	121	61	50.4	49	40.5	10	8.2	1	0.8	
	Total N	443	174	39.3	217	49.0	46	10.4	6	1.3	

[#]Kruskal- Wallis test indicate statistically significant differences if $p < 0.05$. Highest % scores (all schools) shaded.

Two questions referred to the use of food labels: i) “I read food labels to help me choose the healthiest option” and ii) “I would rather choose a product if it is labeled low fat”. For both these questions participants agreed that they refer to food labels to help them make food choices ($n=252$, 53% and $n=241$, 51.4%). Participants also agreed and strongly agreed with the statements that they use oil regularly when preparing food ($n=236$, 50% and $n=22$, 4%), that they add sugar and margarine to food to make it tastier ($n=254$, 54% and $n=19$, 4.0%) and that they buy products that their children eat even if it is not the healthiest option ($n=207$, 44% and $n=14$, 2.9%).

Participants indicated that the attractive packaging of a product will not influence their choice of a product ($n=256$, 56%). Mothers indicated that they do not use sweets to reward their children ($n=197$, 41,8%) and that they will either pack a lunch box or give their children tuck shop money but not both ($n=251$, 53.1%). Furthermore, participants were of the opinion that they know how to prepare healthy meals ($n=217$, 49.0%) and that the cheaper cost of cool drink will not influence them to buy more of it ($n=244$, 51.3%).

Statistically significant differences ($p<0.05$) were observed for four of the twelve statements. The statements were: “I would rather choose a product if it is labeled low fat”; “I use oil regularly when I prepare meals”; “I add sugar and margarine to my vegetables to make it more tasty” and “I do not really know how to prepare healthy meals”. These options are discussed below:

I would rather choose a product if it is labeled low fat

A statistically significant difference ($p=0.03$) was found between the responses of mothers from different socio-economic groups. This significant difference in responses was observed between School A and School B and C. Sixty percent of mothers from school A ($n=119$) agreed with the statement compared to 42% ($n=62$) and 47% ($n=60$) from School B and C respectively.

I use oil regularly when I prepare meals

A statistically significant difference ($p=0.02$) was found between responses of participants from School A and School C. Significantly more mothers from School A (57.3%, $n=114$) agreed with this statement compared to lower percentages of mothers from School B (36.73%, $n=54$) and School C (46.03%, $n=58$).

I add sugar and margarine to my vegetables to make it tastier

A statistically significant difference ($p=0.01$) was found between the responses of mothers from different schools. Bonferoni multiple comparison procedure indicated a significant difference between mothers' practices related to the addition of sugar to vegetables between School A and School B, but not between mother's practices of Schools A and C and Schools B and C. Mothers from School A (60%, $n=121$) agreed most to this statement compared to mothers from School B and C. Although the

majority of mothers from School B and C also agreed with this statement, a higher percentage of mothers from these two schools disagreed with the statement (n= 52, 35% and n=48, 38%).

I do not really know how to prepare healthy meals

There was a statistically significant difference ($p=0.02$) between the responses of mothers from School A and School C.

Eight percent of mothers from School C (n=10) agreed that they do not know how to prepare healthy meals compared to 13.04% of mothers from School A (n=24). Overall, only 11.73% (n=52) of all mothers reported that they do not know how to prepare healthy meals.

3.6.2 PRACTICES OF WORKING VERSUS NON-WORKING MOTHERS

A secondary objective of the study was to determine if the employment status of mothers had an influence on their practices related to healthy eating and food purchases. The responses to the twelve Likert scale statements related to practices are summarized in Table 3.11 and compared between working and non-working mothers. The most prevalent responses are shaded.

Table 3.11: Comparison of results pertaining to practices regarding healthy food choices of working (w) versus non-working (nw) mothers

Statement	Employment status	n	Strongly Disagree		Disagree		Agree		Strongly agree		p-value
			n	%	n	%	n	%	n	%	
I read food labels to help me choose the healthiest options (N=464)	w	314	8	2.5	112	35.6	165	52.6	29	9.2	0.34
	nw	150	7	4.6	44	29.3	81	54.0	18	12.0	
I will rather choose a product if it is labeled low fat (N=466)	w	313	8	2.5	135	43.1	150	47.9	20	6.4	0.03*
	nw	147	6	4.0	43	29.2	85	57.8	13	8.8	
I give my child tuck shop money (N=466)	w	316	10	3.1	160	50.6	100	31.6	46	14.5	0.75
	nw	150	7	4.6	75	50	43	28.6	25	16.6	
I use oil regularly when I prepare meals (N=464)	w	315	33	10.5	119	37.7	149	47.3	14	4.4	0.03*
	nw	149	14	9.4	44	29.5	83	55.7	8	5.3	
I add sugar and margarine to my vegetables to make it more tasty (N=465)	w	315	28	8.8	112	35.5	163	51.7	12	3.8	0.36
	nw	150	15	10	41	27.3	87	58	7	4.6	
I buy the food my children eat even if it is not the healthiest (N=461)	w	316	30	9.5	130	41.8	140	45.0	11	3.5	0.73
	nw	150	16	10.6	67	44.6	64	42.6	3	2.0	
I do not buy vegetables because my children won't eat them (N=464)	w	316	111	35.1	178	56.3	27	8.54	0	0	0.16
	nw	148	57	38.5	72	48.6	18	12.1	1	0.68	
If the package of a product looks pretty I will choose that product(N=463)	w	314	100	31.8	170	54.1	36	11.4	8	2.55	0.31
	nw	149	41	27.5	90	60.4	17	11.4	1	0.6	

Statement	Employment status	n	Strongly Disagree		Disagree		Agree		Strongly agree		p-value
			n	%	n	%	n	%	n	%	
I pack a lunchbox and give my child tuck shop money (N=465)	w	314	37	11.7	171	54.4	61	19.4	45	14.3	0.01*
	nw	151	32	21.1	77	50.9	17	11.2	25	16.5	
I reward my children with sweets and chocolate(N=462)	w	313	51	16.2	128	40.8	125	39.9	9	2.8	0.5
	nw	149	31	20.8	64	42.9	50	33.5	4	2.68	
I buy gas cool drink because it is cheaper than fruit juice (N=466)	w	315	82	26.0	167	53.0	64	20.3	2	0.6	0.25
	nw	151	39	25.8	72	47.6	36	23.8	4	2.6	
I do not really know how to prepare healthy meals (N=435)	w	294	117	39.8	146	49.6	27	9.1	4	1.3	0.61
	nw	141	53	37.5	67	47.5	19	13.4	2	1.4	

*Chi-square statistics indicate statistically significant differences if $p < 0.05$

Statistically significant differences were documented for working versus non-working mothers with regards to the statements “I will rather buy a product if it is labeled low fat” ($p=0.03$); “I use oil regularly when I prepare meals” ($p=0.03$) and “I pack a lunch box and give my child tuck shop money” ($p=0.01$). Fifty seven percent of non-working mothers ($n=85$) agreed that they would rather buy a product if it is labeled low fat compared to 47% of working mothers ($n=150$).

With regards to the questions “I pack a lunch box and give my child tuck shop money”, more non-working mothers (72%, $n=109$) disagreed and strongly disagreed with this statement compared to 66% of working mothers ($n=208$), thus indicating that non-working mothers either only give a lunch box or tuck shop money but not both.

No statistically significant difference between working and non-working mothers was found with regards to the others statements pertaining to practices.

3.6.3 PRACTICES RELATED TO BUYING TAKE AWAYS

Three statements, of which one pertained to the frequency of eating away from home, another pertaining to the frequency of take away purchases and the last related to the reasons for buying take aways, were included in the self-administered questionnaire. Participants could choose one of four options as indicated on a Likert scale. The results of these three statements are presented in Table 3.12, 3.13 and 3.14 respectively.

Table 3.12: “We eat away from home at least once a week.” (N=472)

Statement	School	Strongly Disagree	Disagree	Agree	Strongly agree	p-value				
Comparison between the responses of mothers from the three schools representing different national quintiles										
		n	%	n	%	n	%			
We eat away from home at least once a week	A	86	43.2	88	44.2	24	12.1	1	0.5	0.001*
	B	45	30.8	68	46.5	31	21.2	2	1.3	
	C	28	22.0	64	50.4	33	25.9	2	1.5	
	Total	159	33.6	220	46.6	88	18.6	5	1.0	

*Chi-square statistics indicate statistically significant differences if $p < 0.05$ Highest % scores shaded

A statistically significant difference ($p < 0.001$) was found between responses of mothers from School A compared to those from School B and C. More mothers from School A ($n=86$, 43.2%) strongly disagreed with this statement compared to only 22% ($n=28$) of mothers from School C. Double the percentage of mothers from School C ($n=33$, 25.9%) agreed that they eat out at least once per week compared to 12.1% ($n=24$) of mothers from School A. A combined 19.6% ($n=93$) of all mothers surveyed agreed or strongly agreed with this statement, indicating that they eat away from at least once a week.

Figure 3.2 illustrates a statistically significant difference ($p < 0.01$) between the responses of working versus non-working mothers to the statement: “We eat away from home at least once a week”. Although the majority of mothers from both groups disagreed that they eat out at least once a week, more working mothers ($n=64$, 20.4%) agreed with the statement, compared to non-working mothers ($n=23$, 15.3%).

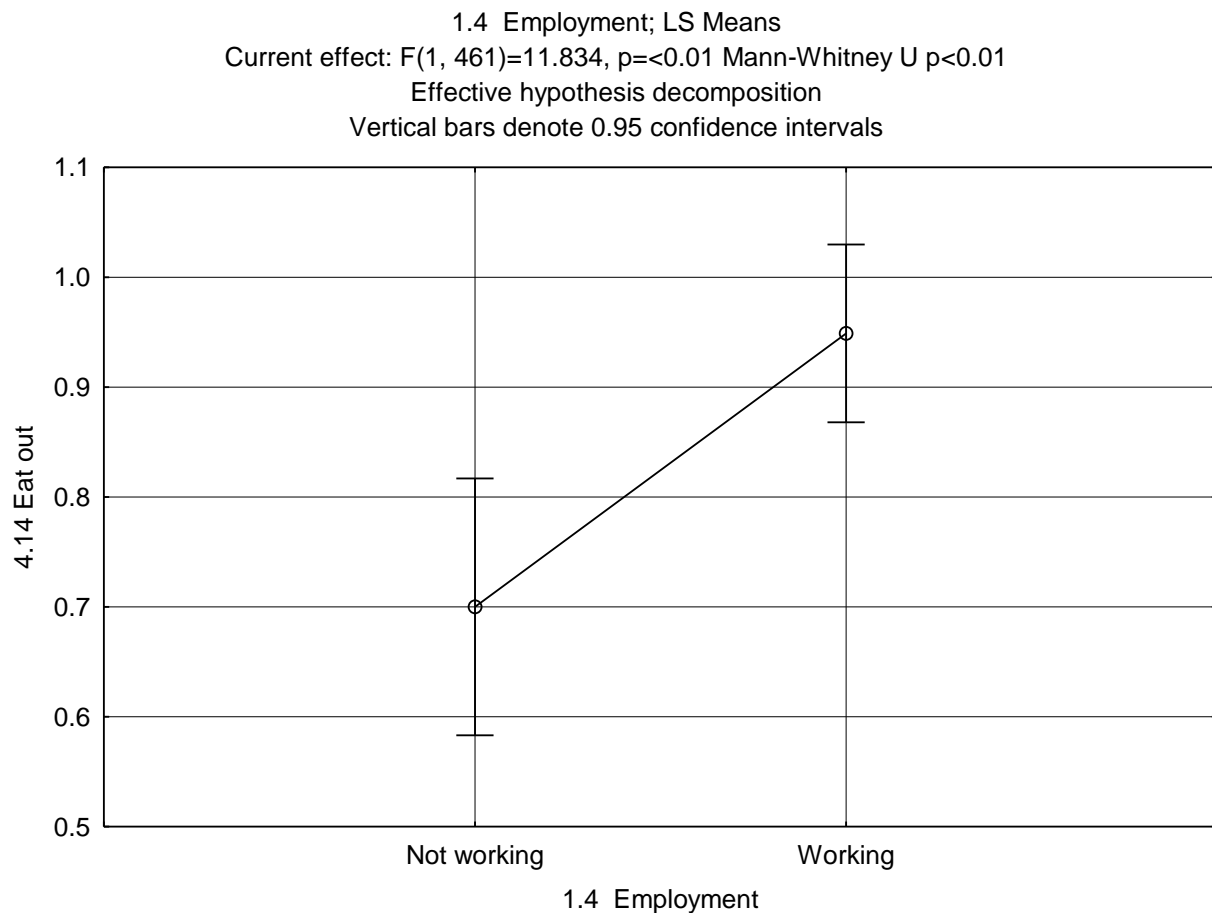
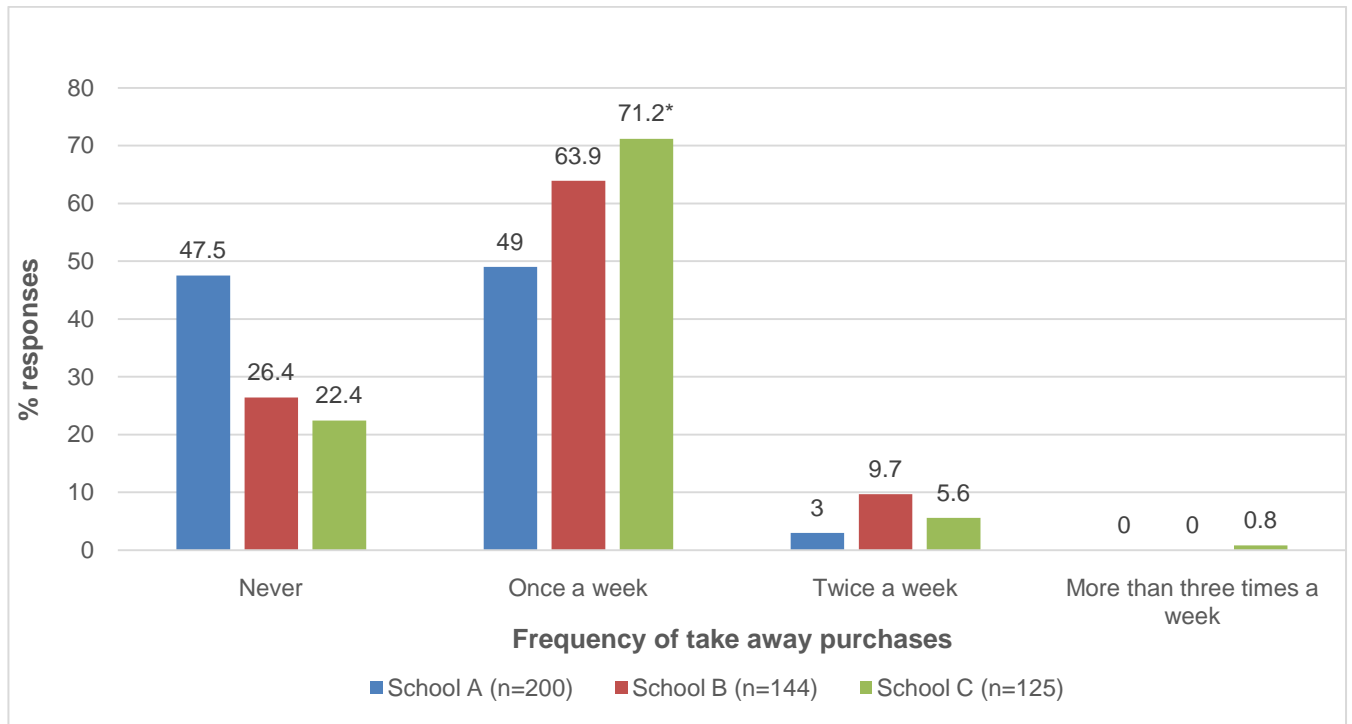


Figure 3.2: Comparison between responses of working vs. non-working mothers to the question: "We eat away from home at least once a week."

3.6.3.1 Frequency of take away purchases

Participants could choose one of four options to answer the question pertaining to the frequency of take away purchases as seen in Figure 3.3.



*Kruskal- Wallis statistics indicate statistically significant differences if $p < 0.05$

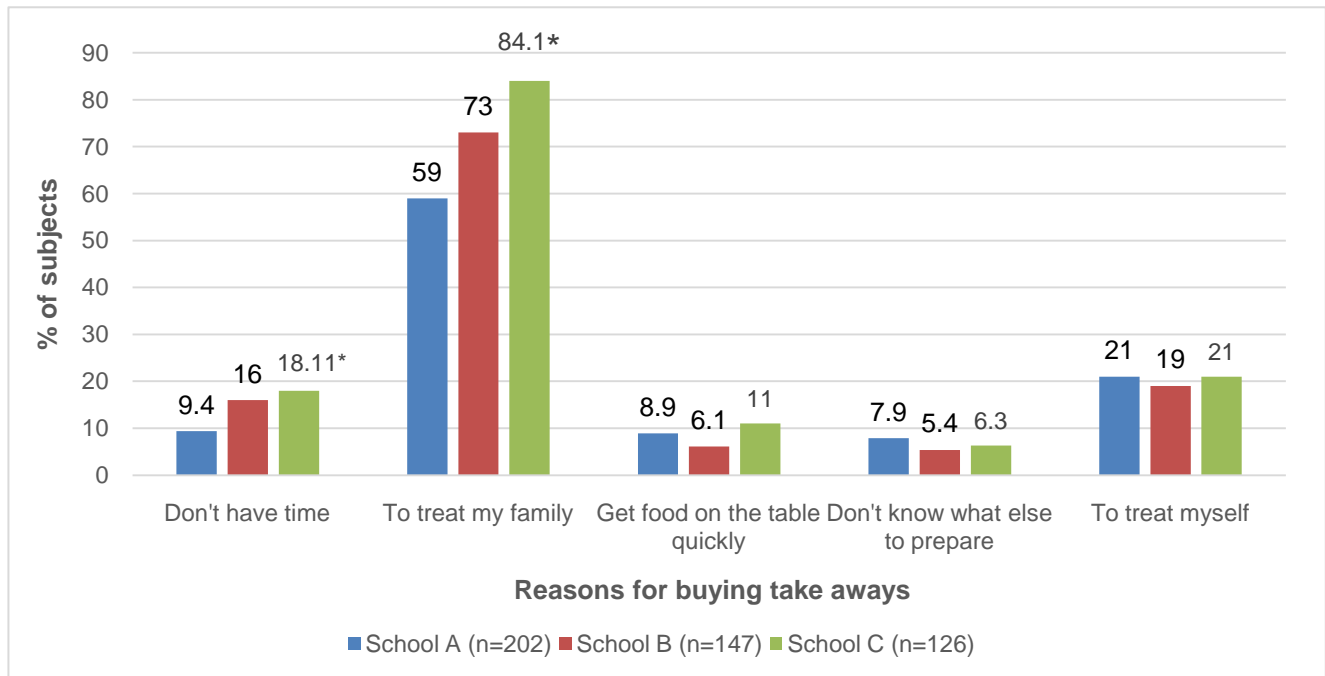
Figure 3.3: “How often do you buy take-aways?” (N=469)

A statistically significant difference ($p < 0.01$) was observed between responses of mothers from School A compared to School B and C. A larger percentage of mothers from School B ($n = 92$, 63.9%) and C ($n = 89$, 71.2%) reported that they buy take aways once per week compared to 49% ($n=98$) of mothers from School A. For the group as a whole, 61.3% ($n=287$) of mothers reported that they buy take aways once per week. Almost half of the mothers (47.5%) from School A reported to never buy take aways.

A statistically significant difference ($p < 0.01$) between the responses of working versus non-working mothers with regards to the frequency of take away purchases was observed. Two thirds (66%) of working mothers ($n=206$) indicated that they buy take aways at least once a week compared to 46% of non-working mothers ($n=70$).

3.6.3.2.Reasons for buying take aways

Participants could choose from five different options to indicate the reasons for buying take aways. They could choose more than one option. The results are summarized in Figure 3.4.



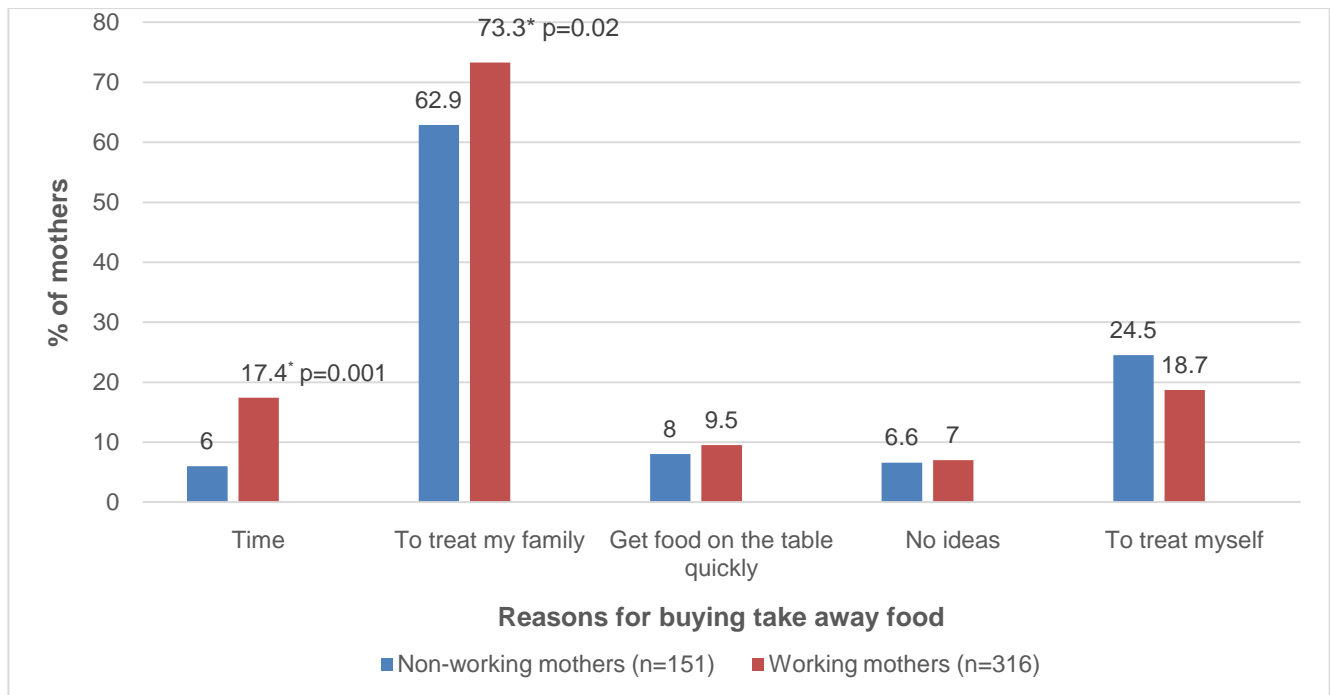
*M-L Chi Square statistics indicate statistically significant differences if $p < 0.05$

Figure 3.4: Comparison between the reasons for buying take aways of mothers from different schools

The main reason for buying take aways across all three schools ($n=475$) was reported as “to treat my family”. Eighty-four percent of mothers from School C ($n=126$) reported this to be the main reason for buying take aways compared to 59% and 73% of mothers from School A ($n=202$) and School B ($n=147$) respectively. This difference was statistically significant ($p=0.001$). The second most common reason listed by mothers from all schools was “to treat myself”.

A statistically significant difference ($p<0.05$) was found for the reason “do not have time” between mothers from School C ($n=23$, 18.2%) compared to mothers from School A ($n=19$, 9.4%) and School B ($n=23$, 16%) with more mothers from School C indicating that a lack of time would encourage them to buy take away food.

Figure 3.5 illustrates the responses of working versus non-working mothers pertaining to the reasons for buying take aways.



*M-L Chi Square statistics indicate statistically significant differences if $p < 0.05$

Figure 3.5: Comparison between the reasons for buying take aways between working and non-working mothers

The main reasons for buying take away food in both groups of mothers were to “treat the family” followed by “treating myself”.

There was a significant difference ($p=0.001$) between the percentage of working ($n= 55$, 17.4%) and non-working mothers ($n= 9$, 6.0%) who reported that a lack of time was the reason for purchasing take away food. Although both groups identified treating their family as being the main reason for buying take aways, there was a statistically significant difference between the two groups ($p=0.02$) with more working mothers ($n=231$, 73%) compared to non-working mothers ($n=95$, 62.9%) reporting that treating the family was the reason for their purchase.

3.6.3.3 Practices related to tuck shop money

Two questions related to tuck shop money were included in the self-administered questionnaire. The first question related to how often parents give tuck shop money to their children. Four options were provided on a Likert scale. The second question was an open-ended question asking about the amount of tuck shop money given per week. Table 3.13 summarizes the results pertaining to the question on the frequency of giving tuck shop money to children.

Table 3.13: “I give my children tuck shop money” (N=475)

State- ment	School	n	No, Never		Yes on rare occasions		Yes 1-2x per week		Yes, everyday		p- value
Comparison between the responses of mothers from the three schools representing different national quintiles											
			n	%	n	%	n	%	n	%	
I give my child tuck shop money	A	201	6	2.9	77	38.3	62	30.8	56	27.8	0.01*
	B	147	7	4.7	87	59.1	44	29.9	9	6.1	
	C	127	6	4.7	75	59.0	38	29.9	8	6.3	
	All	475	19	4.0	239	50.0	144	30.3	73	15.0	

Kruskal Wallis test indicates statistically significant differences if $p < 0.05$

A statistically significant difference ($p=0.01$) was found between responses from mothers of different school quintiles. Significantly more mothers from School A ($n=56$, 27.8%) indicated that they give their children tuck shop money everyday compared to mothers from School B and C respectively ($n=9$, 6.1% and $n=8$, 6.3%). For the whole group, 50% ($n=239$) of mothers indicated that they do give tuck shop money on rare occasions and 30% ($n=144$) indicated that they give tuck shop money once or twice a week.

The employment status of mothers did not have a significant influence on the frequency with which tuck shop money was given to children.

Mothers were asked to report the amount of tuck shop money they give to their children per week. (Table 3.14)

Table 3.14: Weekly tuck shop money mothers give to their children (N=471)

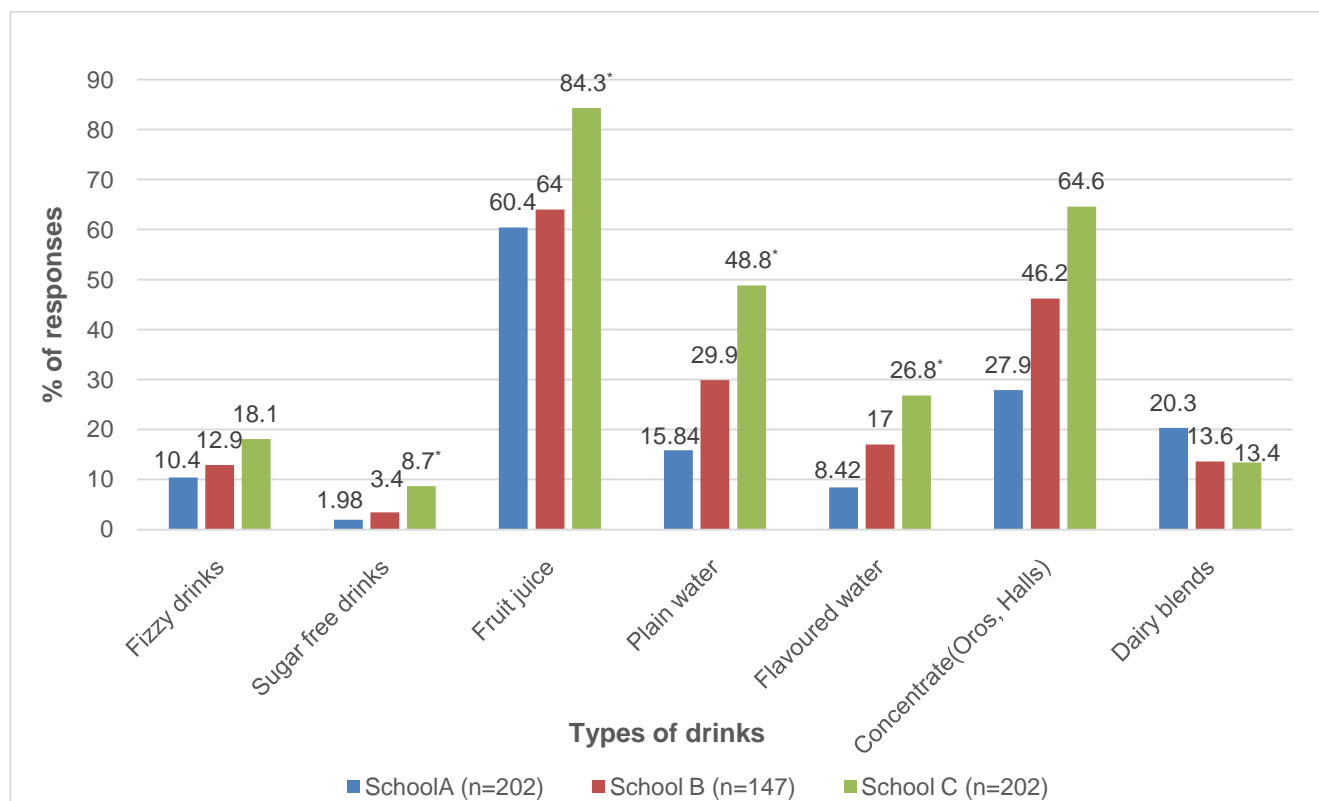
	n	Amount per week (R)	p-value
Average for the group	471	8.05	
School A	202	6.49	0.000*
School B	147	8.13	
School C	122	10.54	
Employment status	462		
Working	311	9.09	0.0001*
Non-working	151	5.88	

Chi-square statistics indicate statistically significant differences if $p < 0.05$

The average weekly amount of tuck shop money given for the group as a whole was R8.05. The largest amount of money mothers gave to their children on a weekly basis was given to children in School C (R10.54) and the least amount of money to children in School A (R6.49). This difference was statistically significant ($p=0.00$). The average amount of money per school day was R1.61. Working mothers gave significantly more tuck shop money per week ($p=0.0001$) compared to non-working mothers (R9.09 vs. R5.88).

3.6.3.4 Practices related to cool drink choices for children

Participants were provided a list of options from which they could choose the type of drinks they usually choose for their children. They could choose more than one option. (Figure 3.6)



*M-L Chi Square statistics indicate statistically significant difference if $p < 0.05$

Figure 3.6: “Which of the following drinks would you choose for your child?” (N=476)

A statistically significant difference was found between sugar free drinks ($p=0.01$), fruit juice ($p=0.00$), plain water ($p=0.00$) and flavored water ($p=0.00$) for the three schools. Fruit juice was reported as the drink of choice for mothers from all three schools (School A 60.4%, School B 64% and School C 84.3%). This was followed by cool drink concentrates for all three schools. A low percentage of mothers from all three school groups chose fizzy drinks as a cool drink choice.

Almost 50% of mothers from School C reported plain water as a preferred drink for their children.

No statistically significant difference was found between the preferred drink purchased for working versus non-working mothers, except for cool drink concentrates such as Oros and Halls that require dilution with water. A statistically significant difference ($p=0.006$) was found between working and non-working mothers. More working mothers (47.7%, $n=151$) bought these drinks compared to non-working mothers (34.4%, $n=52$).

3.7 RESULTS FROM FOCUS GROUP DISCUSSION RELATING TO PRACTICES

Focus group discussions were conducted to gain more insight into the topic of healthy eating and to elicit barriers to healthy food choices. The topics discussed below give an in-depth description of the practices related to vegetable preparation and opinions on fast food restaurants

Vegetables

Fruits and vegetables were viewed as the healthiest food to eat. When participants were asked whether they purchase these items regularly, they all smiled and were almost shy when discussing this topic. Mothers from different schools all agreed that vegetables are not children's most favorite food and agreed that children are more willing to eat fruit. Mothers explained that they have to be creative in their approach to encourage vegetable intake. One strategy described by mothers from School A was to camouflage the vegetables in stews and "potjiekos".

SAw: "my children will eat vegetables in stew but they do not like it on the stove, but n stew they will eat three plates..."

The practice of adding margarine and sugar as well as cheese to vegetables to make it more acceptable for their kids, was also described by mothers from all three schools.

SAw: "My daughter does not like pumpkin, but I throw in more sugar and then she eats it."

SAw: "I cook everything together and throw cheese over then they eat it."

SBw: "If you do not sweeten it (the vegetables) the kids won't eat it."

A general concern about vegetables going to waste was also highlighted by mothers. Mothers from School B and C did not want to risk spending time preparing vegetables if it was going to be wasted. They mentioned that they won't buy vegetables if the family does not eat it. Furthermore, they would serve food which the family eats to preserve harmony in the house, even if it is not the most nutritious choice.

SCnw: "I do not like to make it (vegetables) because it goes to waste. I still have sweet potato in the fridge from the weekend, but no one is interested."

A working mother from School B explained that she would try to buy vegetables that do not perish easily and last longer to avoid spoilage in the fridge. During the discussion with participants from School A, the issue of how to prepare vegetables was mentioned. One mother said that she does not really know how to prepare vegetables and lacks creative ideas on how to cook and serve it and that this might be the reason for not buying it. The role of the parents' eating habits was also discussed in the context of eating vegetables. Mothers from School C especially were in disagreement with the statement that if you eat vegetables the kids will follow. One mother said that she loves vegetables but her kids refuse to eat it. Mothers from School B and C explained that they will continue buying

vegetables as they themselves and the fathers still enjoy vegetables. Participants from School A were less influenced by the food preference of family members and were of the opinion that the family must eat what they prepared.

Fast food

Mothers were asked what their opinion regarding fast food outlets was in terms of health and convenience. The majority of participants from all three schools agreed that they only buy take aways occasionally and mostly over weekends. Working mothers from School B and C explained that they would buy take aways when they need a break and when they want to treat themselves. One mother from School A said that they buy Kentucky at the end of the month but not every day because it is unhealthy.

Mothers from School A explained that they do not have fast food restaurants in close proximity to where they live; hence it is not a problem for them. Mothers from School B and C were of the opinion that fast food outlets are convenient, in walking distance from their home and that there are so many to choose from.

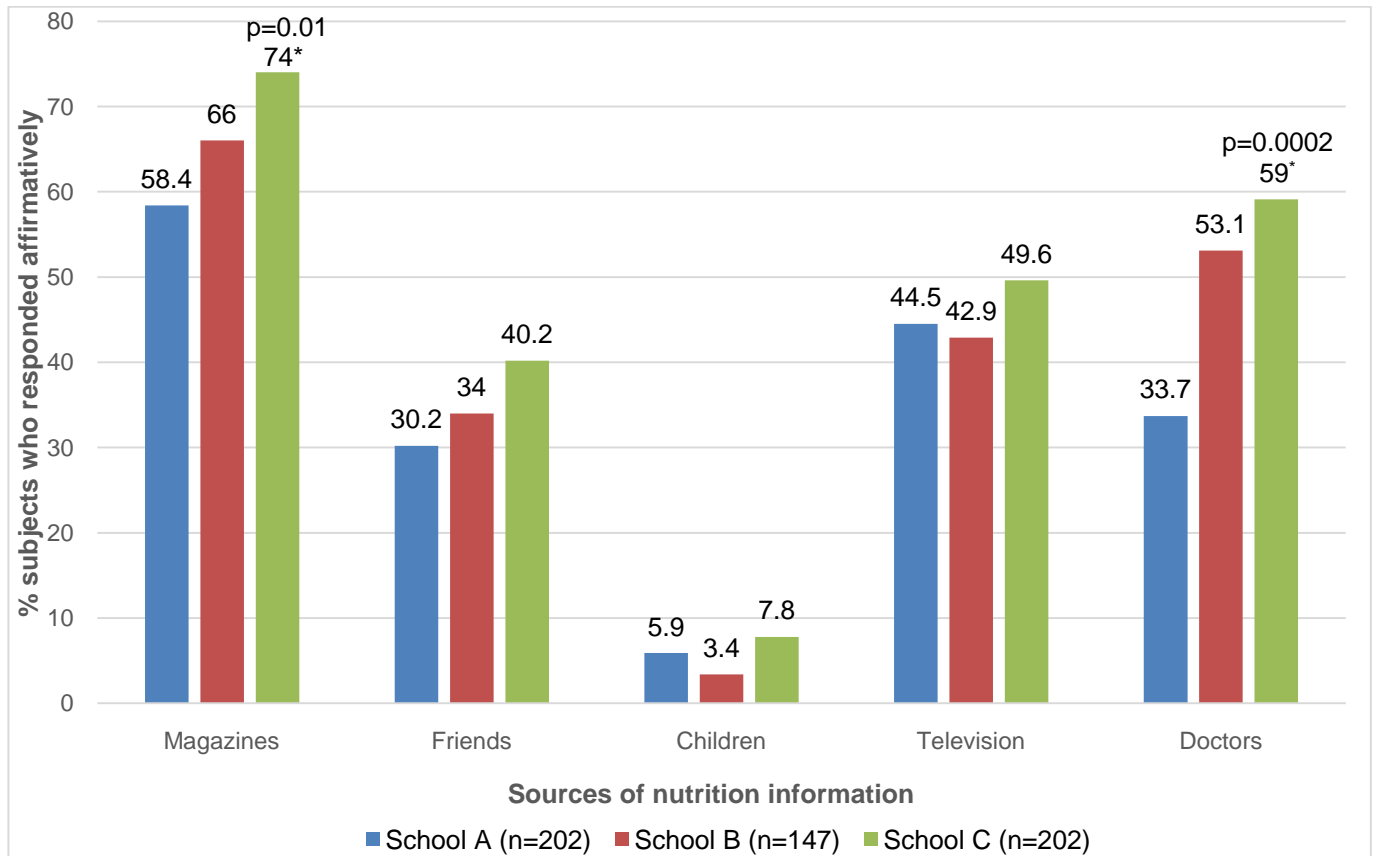
SCnw: "...today it (fast foods) is very much in the eye. We stay around the corner from McDonalds but we drive another route....because if we drive past it he (child) is going to ask."

Working mothers from School C were much more aware of the daily specials at restaurants, probably due to the fact that the restaurants are more easily accessible and their financial situation allows them to for buy take aways more often. They also mentioned that there is a special almost every day of the week. This makes eating out even more appealing. The following quotes from School C mothers give more insight into the reason for buying take-aways.

SCw: "...and if you look at it, it is cheaper to eat out than to prepare food. If you have to cook its electricity and petrol..."

3.8 SOURCES OF NUTRITION INFORMATION

One of the questions in the self-administered questionnaire asked participants to choose the main sources that they obtain nutrition information from. Participants were given six options to choose from and a seventh option where they could list other sources of nutrition information in addition to the options provided in the self-administered questionnaire. (Figure 3.7)



*Chi-square statistics indicate statistically significant differences if $p < 0.05$

Figure 3.7: Sources of nutrition information per different schools

There were no statistical differences in the sources of nutrition information for mothers from different socio-economic groups except for magazines ($p=0.01$) and doctors and health professionals ($p=0.0002$). Mothers from School A ($n=202$) reported that they get most of their nutrition information from magazines (58.4%) and television (44.5%). Mothers from School B ($n=147$) and C ($n=127$) listed magazines (66% and 74%) and doctors and other health professionals (53.1% and 56.1%) as their main sources of nutrition information. The only “other” option that was frequently reported by mothers from School B and C was the internet.

3.8.1 SOURCES OF NUTRITION INFORMATION AS DEDUCED FROM FOCUS GROUP DISCUSSIONS

During the focus group discussions, the workplace was mentioned as an important source of nutrition information, more specifically by mothers of School A and B. Mothers from School A referred to the crèche or hospital where they worked and that they learnt a lot about nutrition there. They also explained that the clinics are a good source of nutrition information. They explained that if they take family members with TB or diabetes to the clinic, they listen to the advice which the nurse gives and try to apply the healthy eating guidelines for themselves and their families.

With regards to food labels as a source of nutrition information, all mothers agreed that they did not look at the nutrition information on the packaging of products, mainly because they do not fully understand it.

SBw: “....we really do not know how it works and what it means in our diets and it’s like the smallest part on the product”.

Participants however expressed their need to be able to understand and use the information labels to guide their food choices. Reasons for not reading nutrition labels are explained by the following quote:

SAnw: “I do not know what it means. If I knew more I would use it.”

Mothers seemed to look at food labels only if a child is allergic to a specific ingredient. Participants from School C referred to tartrazine as an ingredient they would look for before buying a product. In summary, all mothers were aware of the nutrition information available on food products but it did not influence their purchasing decisions mainly due to a lack of understanding, an inability to interpret the information or the perception that the products with logos on are more expensive.

SBw: “I do not look at it at all. Sometime the label says it’s healthy but then you see it is R30 then I leave it, unless I know the kids will eat it.”

During the focus group discussions only mothers from School C referred to the internet as a source of nutrition information.

3.9 KNOWLEDGE ABOUT OBESITY

One of the study objectives was to determine the mothers' basic knowledge regarding childhood obesity. Three true or false questions were asked in the self-administered questionnaire. A correct answer scored one and an incorrect answer was allocated a zero. An average score for each school was obtained. The results are summarized in Table 3.15.

Table 3.15: Statements pertaining to knowledge about childhood obesity (N=476)

Statement	Percentage answered correctly						p-value
	School A (n=202)		School B (n=147)		School C (n=127)		
	%	n	%	n	%	n	
Overweight children have a greater chance of becoming overweight adults	71.8	145	80.3	118	85.0	108	0.01 [*]
Overweight children are at risk of developing DM	89.6	181	87.1	128	94.5	120	0.11
Active children have a smaller chance of becoming overweight	80.7	163	75.5	111	85.0	108	0.13

M-L Chi square statistics does not indicate statistically significant differences if $p > 0.05$

A statistically significant difference ($p=0.01$) was observed between the different schools with regards to the statement "Overweight children have a greater chance of becoming overweight adults". Only 72% of mothers from School A answered the question correctly compared to 80% of mothers from School B and 85% of mothers from School C.

No statistically significant difference was found between working ($n=316$) and non-working ($n=151$) mothers for any of the three questions posed.

3.9.1 ATTITUDE TOWARDS CHILDHOOD OBESITY DEDUCED FROM FOCUS GROUP DISCUSSIONS

During the focus group discussion, mothers were asked whether they were aware of overweight children in their community and whether it concerns them. There was consensus amongst all groups that they see overweight children in their community but opinions regarding the reason for this phenomenon differed. Causes for obesity given by the participants varied from genetics implying that you can't really do anything about it, to parents' responsibility and portion sizes that were too big. None of the participants referred to unhealthy food, too much fizzy cool drinks and sweets and chocolates as the reasons for children being overweight. Only one non-working mother from School A mentioned of too many sweets and chocolates in the children's' diet being a cause for overweight children.

Participants who had overweight children was concerned about it, but blamed it on genetics.

SBnw: "I have an overweight child, but she was born big, but it's my husband's side of the family."

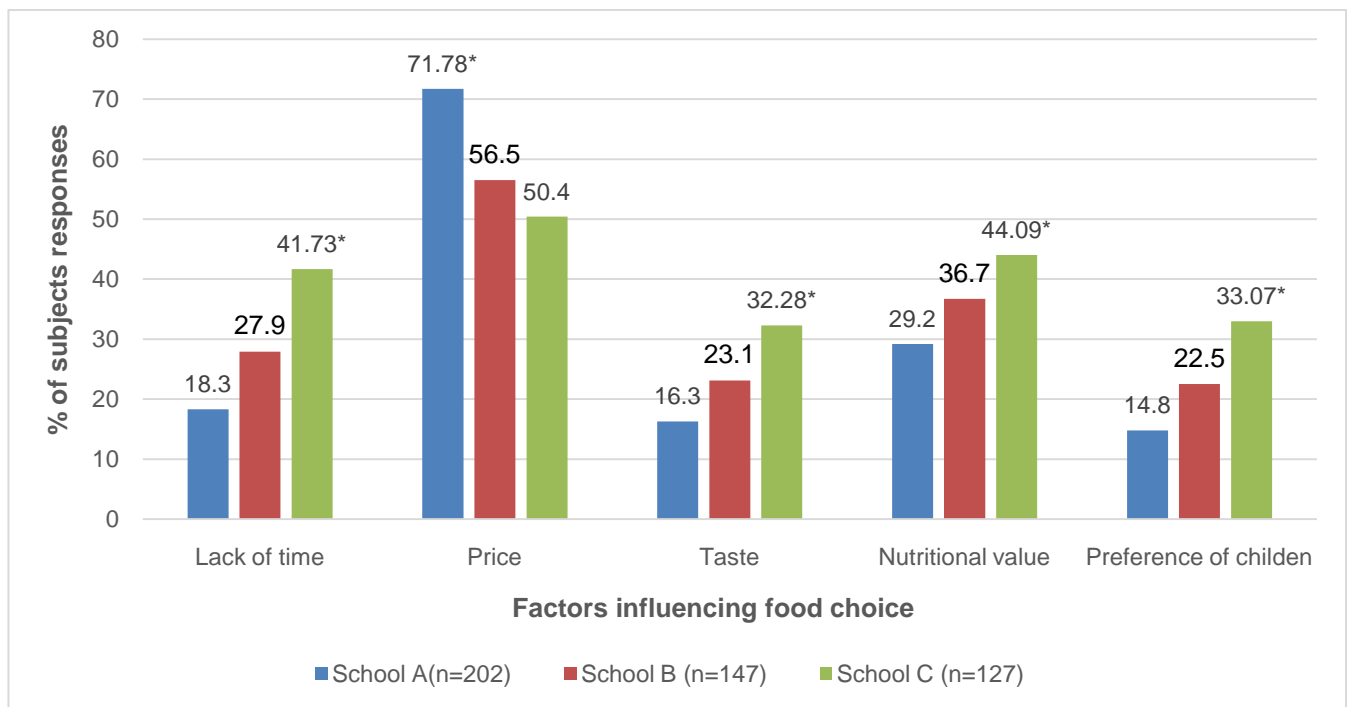
SCnw: "I always ask myself is he fat or just big build, your daddy is big and mommy is not small, so it doesn't concern me. We do not eat unnecessary fatty food, so it's not just unhealthy food that makes a child being more big built."

Mothers from School C felt more strongly about the role of the parent regarding obese off-spring. They explained that parents have the responsibility to set the boundaries when eating healthily e.g. yoghurt which is healthy and unhealthy food such as a packet of chips. They referred to kids nagging to have more, even if it is healthy food, and that one should then be strict and control the portions they consume. One participant also referred to the busy lifestyle of today and that in itself could be a reason for overweight children as explained below:

SCnw: "... we have to eat three times a day but the timing is not always good so we eat less times but we overeat. So that might be the reason why some kids are overweight, they eat first break, do not know about second break and then when they come home they eat six slices of bread because they are hungry."

3.10 FACTORS INFLUENCING FOOD CHOICES MADE BY MOTHERS

One of the main objectives of the study was to determine the factors that influence food choices of mothers. A secondary objective was to determine whether there was a difference in these factors with regards to socio-economic status and employment status of the mothers. Participants were asked one question in the self-administered questionnaire with five options to choose from. Participants could list more than one option. The options were (i) a lack of time; (ii) price; (iii) taste; (iv) nutritional value and (v) preference of children. (Figure 3.8)



* M-L Chi Square statistics indicate statistically significant differences if $p < 0.05$

Figure 3.8: Comparison of factors influencing food choices of mothers from different schools (N=476)

During the focus group discussions, participants were asked to tell the interviewer more about how they make their food choices. The results from the focus group discussion are simultaneously discussed in accordance with each influencing factor.

Cost of healthy and unhealthy food

Cost was listed as the biggest factor that influences food choice by participants from all three schools. There was a statistically significant difference ($p=0.001$) between the three schools where 72% of mothers from School A ($n=145$) reported that price influenced their purchasing decision compared to 56% ($n=83$) and 50% ($n=64$) of mothers from School B and C respectively.

During the focus group discussions, cost of food products was mentioned by all mothers from all three schools as having an influence on their purchasing decisions. Mothers, irrespective of their

employment status, reported that they look out for and are aware of specials and will try to rather buy those items. It was clear that the advertisements via newspapers and “junk mail” were a major source of information utilized by participants to keep them updated on prices and specials.

SCnw: “and the price is also important because today’s lifestyle is very expensive. If I see there is a special and it is still a good product then I will buy that one.”

SAw: “we shop where the bargains are when they send out the pages (advertisements) then I go to the shops that have the specials.”

Participants from School A were more outspoken about the cost of healthy food. There seemed to be in agreement that healthy food, specifically fruit and vegetables, are expensive. The cost of fruit and vegetables sold by spaza shops (informal convenience shop) and informal vendors was reported to be more expensive compared to prices and specials of fruit and vegetables offered in town. Unfortunately, this is the only available suppliers of fruit and vegetables in their immediate environment and they have no alternative option. In addition, even if the prices in town were cheaper, they still had to travel by taxi to get to town which defeated the cost saving exercise.

SAw: “the fruit and vegetables here are very expensive, if we go Bellville it will be cheaper... here a cabbage costs R15 and we can get it at Fruit and Veg for R10.....and then there is still the taxi fare.

Mothers also perceived food that is labeled as healthy as more expensive as explained by a mother from School B:

S4w: “sometimes the label says it’s healthy but then you see the price (R30) then you leave it...”

The cost of unhealthy food was also discussed in the focus group discussions. Mothers agreed that unhealthy food options such as sweets and chips are cheaper compared to buying fresh fruit or healthy food. This makes it easier to choose the cheaper, unhealthier option. This opinion is in line with the results generated by the self-administered questionnaire where more mothers felt that it is better to eat a packet of chips than to eat nothing at all. Although this was not mentioned as a direct barrier to their food choice, mothers explained that if their children have money, they (the children) will always opt for the unhealthy options because it is cheaper, especially at school. A working mother from School C also mentioned that the unhealthier packet of chips or a sweet is not expensive and therefore she puts it in the child’s lunch box every day. They further explained that they cannot control what their children buy with the money which they take to school.

SAw: “they can buy sweets, chips, a Bompie (sweet); it is a lot of stuff they can buy for 50 cents.”

SAw: “they take cool drink bottles and give it in for money, or they do the neighbour a favour, then they buy sweets cause what else can you buy for 50 cents. If you buy an apple it is one rand, its expensive, they go for the cheaper option.”

Therefore it is not only the high cost of healthy food, but also the poor nutritional quality and affordability of unhealthy food items that can be seen as a barrier to healthy eating.

Lack of time and convenience

A statistically significance difference ($p=0.000$) was observed between mothers from different school with regard to a “lack of time” as a factor influencing food choice. Forty two percent of mothers from School C ($n=53$) reported that a lack of time had an influence on their food choice compared to 18% of mothers from School A ($n=37$) and 27% of mothers from School B ($n=41$).

During the focus group discussions, only working mothers from School B and C mentioned convenience and time saving products influencing their food choices. They agreed that they usually do not have enough time to cook a decent meal and would opt for quicker, more convenient time saving options even if it is not the healthiest option. Working mothers from School C mentioned food that you can heat in the microwave or prepare in the oven, both being quick options. This gave them time to help children with homework or do other household chores. They were not always concerned about the nutritional value, as long as there was food on the table and everyone was satisfied. One mother explained that although two minute noodles are not healthy, the kids love it and she feels pleased that they ate it.

SBw: “Definitely, if you are a working mom you go for the quickest options, something you can put in the oven, but it’s not always the best choice, because some of it is processed. I do not have time to clean and peel and cook, make a variety.”

SBw: “I get home at 5 o’ clock then you have to make food, help with homework, husband works late and you have to clean the house so if they nag for chips, even if it is unhealthy, I’ll make it.”

Non-working mothers agreed that they had more time to prepare food and that they are “more fresh” at night to prepare food. They also agreed that they had more time to plan grocery shopping and could do it without their kids whilst they are in school.

Budget, time and convenience were the two barriers discussed most frequently against the background of employment status and appeared to have a substantial impact on food purchases and preparation. Non-working mothers agreed that having less money to spend on food did not necessarily translate into unhealthy food choices, it only meant less money for luxuries. Working mothers more often referred to a lack of time. This however, was a direct result of the mother’s employment status. They explained that they are tired when they get home at night, have to juggle

household task with cooking and that the quickest option will be chosen even if it is not the healthiest option. They explained that they want to plan healthy meals but in reality, it does not always happen. They agreed that the quickest options are usually a coping mechanism to make time for other household tasks. Cooking meals was almost seen as a burden for working mothers. This could also result in a negative attitude towards meal preparation that can filter through to their children.

Another challenge working mothers identified with was the fact that they had to provide food for their children for the whole day. They felt sorry for their kids and will add treats to their lunch box to compensate for the fact that they are not there for them in the afternoon. This then results in them not eating all their supper.

SBw: "So it makes it difficult because you only see your child at five tonight and you have to give them enough food for the whole day which makes it more difficult for a working mother. Because normally the children come home hungry by the time we need to cook. They do not want to wait. So they look for whatever is in the cupboard"

It seemed that working mothers from the lower socio-economic groups, namely School A, get support from their mothers or sisters who do not work. They explained that when they get home, the meals are already prepared and that they are not challenged as much as mothers from School B and C.

Nutritional value

The nutritional value of a product was ranked as the second most important factor that would influence food choice of all study participants. A significant difference was also found between the three schools with regards to the role that nutritional value plays in food choices ($p=0.02$). The nutritional value of a food seemed to have a greater impact on food choice of mothers from School C (44%, $n=56$) compared to mothers from School A (29%, $n=59$) and School B (36%, $n=54$).

Although no specific information could be deduced from the focus group discussions regarding the nutritional value of food, it was clear that mothers had their own ideas regarding what healthy food entails. All participants agreed that fruit and vegetables are an essential part of a healthy diet and therefore tried to include it in their children's diet. As the nutritional value of food is based on knowledge other than what can be obtained from reading food labels, mothers mentioned that low fat products and foods containing roughage is healthier. However, as mentioned previously, some misperceptions regarding healthy food might exist e.g. that bread is healthier when toasted.

Taste and child preference

Taste seemed to be more important for mothers from School C (n=41, 32%) compared to mothers from School A and School B (n=33, 16% and n=34, 23%) respectively. A significant difference (p=0.003) was found between the importance of taste between the three schools when purchasing food.

SCw: "... not in my mind, I talk out of personal experience I have a bit of knowledge about healthy food but it does not affect what I'm going to buy. If I get to the shops I buy what my kids want even if I know it is not the healthiest option, so no it is not the knowledge."

During the focus group discussions mothers from School A felt strongly that the children must eat what is served to them and that child preference played a less important role when purchasing food.

Expiry dates and food safety

One mother from School B mentioned that the expiry dates on food will influence her food purchases. She explained that she takes her child with when going shopping to help her look at the expiry dates, because they are taught about it at school.

Employment status and food choice

A secondary objective was to determine if there are any differences in the factors that influence food choice between working and non-working participants. (Table 3.16)

Table 3.16: Comparison of factors influencing food choice of working vs. non-working mothers (N=466)

Factor	% of mothers who chose listed option as a factor influencing their food choice				p-value
	Not working % (n= 151)	n	Working % (n=315)	n	
Lack of time	13.2	20	34.8	110	0.00*
Price	65.5	99	60.1	190	0.25
Taste	21.8	33	23.7	75	0.65
Nutritional value	40.4	61	33.2	105	0.13
Preference of children	19.2	29	23.1	73	0.33

*M-L Chi Square statistics indicate statistically significant differences if $p < 0.05$

A lack of time was the only factor for which there was a statistically significant difference (p=0.001) between working and non-working mothers.

3.11 BARRIERS TO MAKING HEALTHY FOOD CHOICES

One of the primary objectives was to determine barriers to making healthy food choices. Three questions were asked and could be answered on a four point Likert scale. Options varied from strongly disagree to strongly agree. Focus group discussions further explored this topic.

The responses to each of the three questions, compared according to the three different schools, are presented in Table 3.17.

Table 3.17: Summary of responses from mothers of different schools pertaining to barriers to making healthy food choices.

		Strongly Disagree % (n)	Disagree % (n)	Agree % (n)	Strongly agree % (n)	p-value
I do not know how to prepare healthy meals (N=470)						
School	A	38.9 (77)	48.4 (96)	12.1 (24)	0.5 (1)	0.32
	B	40.4 (59)	50.0 (73)	7.5 (11)	2.05 (3)	
	C	48.4 (61)	40.4 (51)	10.3 (13)	0.8 (1)	
Average for all three schools		42.5 (197)	46.2 (220)	10.2 (48)	1.1 (5)	
I know what healthy food is but the rest of my family has different taste preferences (N=469)						
School	A	11.7 (23)	31.8 (63)	51.5 (102)	5.0 (10)	0.33
	B	20.0 (29)	26.9 (39)	49.6 (72)	3.4 (5)	
	C	16.7 (21)	30.2 (38)	46.0 (58)	7.1 (9)	
Average for all three schools		15.5 (73)	29.8 (197)	49.4 (232)	5.1 (24)	
Fast food shops close to home (N=471)						
School	A	49.8 (99)	43.7 (87)	5.5 (11)	1.0 (2)	0.30
	B	51.4 (75)	45.8 (67)	1.3 (2)	1.3 (2)	
	C	50.8 (64)	43.6 (55)	2.3 (3)	3.1 (4)	
Average for all three schools		50.6 (238)	44.3 (209)	3.3 (16)	1.6 (8)	

Chi-square statistics does not indicate statistically significant differences if $p > 0.05$

Although no statistically significant differences were observed between any of the above statements for the various schools surveyed, it is worthwhile to take note of the responses to each question posed.

For the question pertaining to knowledge on how to prepare healthy meals, most mothers disagreed ($n=220$, 46.2%) with this statement by implying that they know how to prepare healthy meals.

For the response to the statement “I know what healthy food is, but the rest of my family has different taste preferences”, slightly more mothers agreed ($n=232$, 49%) and strongly agreed ($n=24$, 5.1%) with this statement compared to those mothers who disagreed ($n=140$, 29.6%) and strongly disagreed ($n=73$, 16.1%). Thus family preference can be seen as a barrier to healthy eating and purchasing choices made by mothers although it is not the strongest factor to influence food choice. Of the five factors that influence food choice listed previously, children’s preferences were listed by less than 30% of all mothers surveyed.

Strong disagreement towards the statement “If there were more fast food shops close to my home, I would buy more take-away food” was reported by mothers. Fifty percent (n=238) strongly disagreed and 45% (n=209) disagreed with this statement, implying that the placements of fast food vendors would not be a barrier to healthy food choices.

However, during focus group discussions, easy access to take away restaurants was reported as a barrier to healthy eating, specifically for mothers from School B and C. They explained that it is such an easy option to fall back on if you are pressed for time or tired.

SCW: “Mondays its buy one get one free, Tuesdays it’s Panarottis, every day there is some kind of special.”

Numerous fast food outlets are situated in close proximity to where mothers from schools B and C stay, making the decision to purchase food from these take away stores even easier.

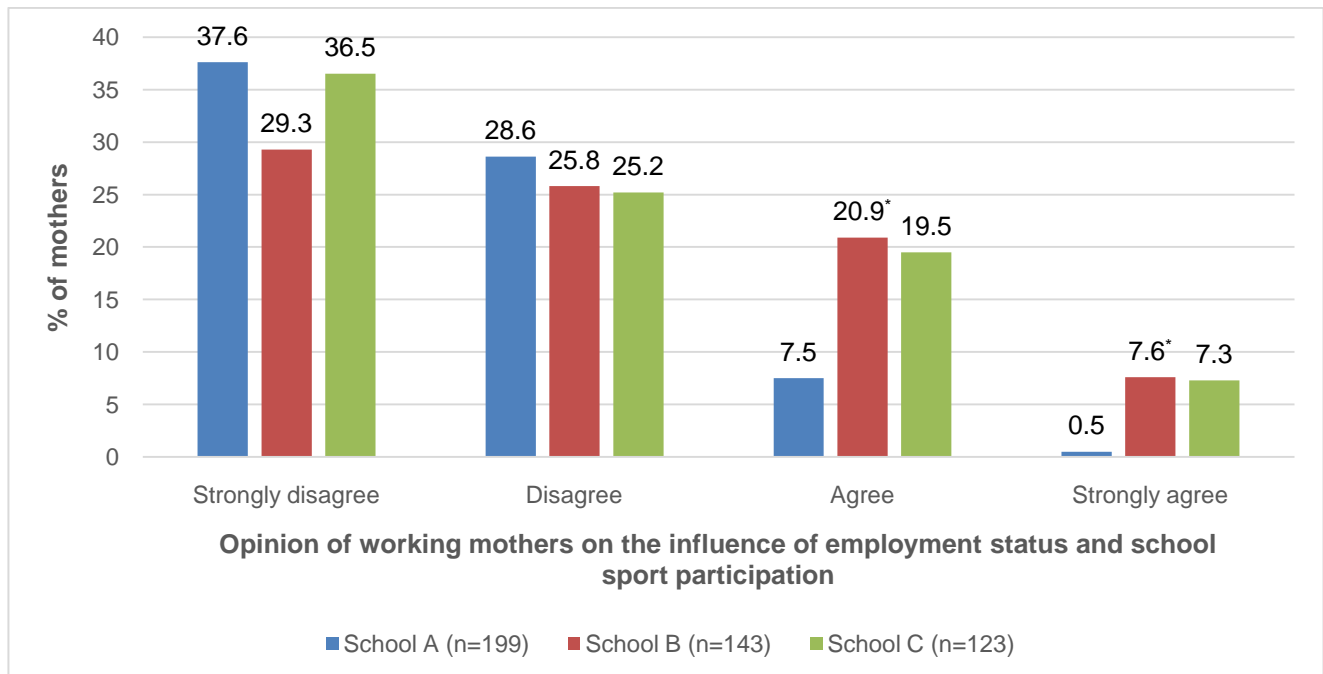
SBNw: “Yes they deliver at your doorstep or else everything is within walking distance. There are so many choices.”

SBNw: “There are hopelessly too many fast food shops, we can’t resist it.”

Mothers from School A did not report this as a barrier, because there were no fast food restaurants present in their immediate environment. Hence, they had to travel further to gain access to fast food restaurants.

3.11.1 EMPLOYMENT AND SCHOOL SPORT ACTIVITY

One question was asked to test the opinion of working mothers towards the statement: “It is difficult for my children to participate in school sport because I work.” Mothers could choose one option on a four point Likert scale ranging from strongly disagree to strongly agree. (Figure 3.9)



*Chi square statistics indicate statistically significant differences if $p < 0.05$

Figure 3.9: Comparisons of responses of mothers from different schools towards employment status and school sport participation (N=465)

Although a small percentage, significantly more mothers from School B and C ($p=0.0001$) agreed and strongly agreed with this statement compared to mothers from School A. Figure 3.9 illustrates that mothers from School A did not agree with the fact that their work prohibit their children from taking part in school sport activities. More than a quarter of mothers from School B and C agreed and strongly agreed that being working mothers makes it difficult for their children to partake in school sport.

3.11.2 ADDITIONAL BARRIERS TO MAKING HEALTHY FOOD CHOICES AS DEDUCED FROM FOCUS GROUP DISCUSSIONS

Mixed messages related to healthy food

During the focus group discussions, mothers were asked what makes it difficult to make the correct and healthy food choices for their family. One of the reasons that lead to confusion was the mixed messages received from the media. Participants, especially from School C, voiced their frustration with the different messages given via mass media.

SCw: "For me mixed messages from different sources. I mean years ago we were taught vegetables, brown bread, and low fat and now you get banting and it is minimal fruit and stuff. It confuses you, so what now?"

Marketing to children

In addition to the influence that marketing has on the food choices of mothers, marketing strategies also directly target children. This barrier was mainly discussed by mothers from the higher socio-economic Schools B and C, regardless of their employment status. One mother explained that her children placed pressure on her to buy products that have a sticker or tattoos in them. These products are not always healthy and are usually expensive. She explained that the children see it on TV or hear about it at school and then they want it.

SCnw: "Yes the attraction is the toy, he doesn't worry about the chips because it's too hard and the burger is like plastic, he wants the toy."

One mother referred to a marketing strategy where white bread had stickers sold as part of the packaging but not the brown bread, making it difficult to choose the healthier option, especially if the children were with them when they did their grocery shopping.

Peer pressure

During the focus group discussion, mothers were asked whether their children experienced peer pressure from other children and if that would influence their food choices. Mothers from School C gave an example of peer pressure relating to purchasing food items at the school tuck shop.

SCw: "I put in everything she needs in her bag, but then she still has the urge to buy something from the tuck shop, it is not that she doesn't have, it is just because the other kids are buying."

Mothers from School B expressed concern about bullying of smaller children. They explained that the children do not want to take fruit to school because the bigger kids take it from them. Mothers also explained that they almost feel guilty if they do not give the child tuck shop money because of the peer pressure experienced by children.

School environment

Mothers were asked what their feelings and opinions were on the availability of tuck shops at school. In addition to giving their opinion on tuck shops at school, others themes such as the role of the teacher and the school environment were also discussed.

School A did not have a school tuck shop and only had informal vendors selling sweets and chips to children as was already discussed.

The mothers of School B and C agreed that the tuck shops predominantly sell unhealthy food. They also discussed the weekly specials that tuck shops have on offer such as chip rolls or pies and chips. This once again resulted in pressure on parents to give the children money to buy the specials.

SBw: "If they have civvies(wearing casual clothes and not school uniform) they sell chip rolls and burgers. So it's part of the fundraising for the school which you want to support but it is not the healthiest for the children."

Mothers expressed their desire to be involved with the decisions regarding the food sold at the tuck shops. They explained that they have voiced their concerns, but that it is mostly private contractors running the tuck shops and their main aim is to make profit.

On a positive note, one mother from School C described a strategy which the school implemented to encourage healthy eating

SCw: "Thursdays is normally healthy lunch box day and then the children will get a star but the rest of the week I can put in anything. I think the school must encourage children to bring more healthy food to school. So more awareness from the school's side will be good."

All mothers that participated in the focus group discussions agreed that the role of the school teachers is powerful. The children see the teachers as role models and the teachers are in the position to set an example and motivate them to make healthy food choices.

SCw: "The kids idealize whatever the teacher says. They listen more to the teacher than us."

When asked whether the mothers think that the kids will buy fruit instead of sweets when they have R2 one mother responded:

SBw: "The teacher can promote it (eating/buying fruit), and then all the kids will want to buy fruit."

Mothers explained that if the teacher said the children may not bring sweets to school it was accepted by the children, but if the mother made that rule the children would be unhappy. Mothers agreed that the school can encourage children to bring more healthy food to school.

SCw: "Thursday is normally a healthy lunch box day. The children get stars. I think the school can encourage children to bring more healthy food. The teacher is always right."

Supermarket layout

A new theme indicative of being a barrier emerging from the focus group discussions was the layout of supermarkets for both informal spaza shops and larger retail stores. Mothers agreed that the visibility of healthy options can be improved and that if isles with healthier options were placed more conveniently, it would assist them when making food purchases. A non-working mother from School A explained:

SAnw: "It [healthy food] is not displayed correctly, if you look at it, because it's only a small little corner and the rest is luxury and basic food."

A mother from School A explained that fruit and vegetables are placed right at the back of the Spaza shops with the results that they do not see the fruit and vegetables. She felt that if fruit and vegetables were more visible, the children might also choose to buy it more often.

3.12 CONCLUDING STATEMENT ON RESULTS

In this chapter the results of self-administered questionnaires and focus group discussions obtained from mothers of three primary schools in the Metro North Education District of the Western Cape were reported. Each school represented a different national quintile. Qualitative and quantitative results were integrated for interpretation and reporting purposes. Several significant findings were found in this study. Nutrition knowledge of mothers of School A was the lowest. Mothers of School A were of opinion that their eating habits have little impact of the eating habits of their children. They were also of the opinion that it is the schools responsibility to teach their children about healthy eating. Mothers from School A made use of unhealthier food preparation methods more frequently compared to mothers of School B and C. The cost, nutritional value and a lack of time was ranked the most important factors to influence the food choice of mothers. Mothers reported that magazines and doctors were their main sources of nutrition information. A complete discussion of the results and implications of the study will follow in Chapter 4 and 5.

3.13 STUDY HYPOTHESES

In this study three hypotheses were tested.

The first hypothesis (H^{01}) that there is no difference between the factors that influence food choice of working and non-working mothers of primary school children was accepted. Despite certain differences between these factors, the factors influencing food choice of working versus non-working mothers was very similar for these two groups.

The second hypothesis (H^{02}) that there is no difference in the nutrition knowledge, attitude and practices between working and non-working mothers of primary school children was rejected. Working mothers had better nutrition knowledge and several differences were observed between these two groups.

The third hypothesis (H^{03}) that there is no difference in the nutrition knowledge, attitude and practices between mothers of primary school children from different socio-economic backgrounds was rejected. Several differences were found with regards to knowledge, attitude and practices of mothers from different socio-economic groups.

CHAPTER 4

DISCUSSION

4.1 DISCUSSION OF THE RESEARCH OBJECTIVES

A child's eating behaviour is established during childhood and may follow them into adulthood. Poor eating habits can lead to the development of diseases such as diabetes and cardiovascular disease with their subsequent consequences. Therefore the main aim of the study was to investigate the factors that influence food choices of mothers of primary school children. The primary objectives of this study focused on the knowledge, attitude and practices of mothers of primary school children regarding food purchases as well as the barriers to making healthy food choices. Secondary objectives aimed to determine any differences between the knowledge, attitude, practices and barriers of working and non-working mothers as well as between different socio-economic groups as represented by three different schools from different school quintiles.

To investigate the knowledge, attitude and practices of the mothers, self-administered questionnaires were used as data collection tools. Focus group discussions were conducted to further investigate barriers that may exist and which prevent mothers from making healthy food choices. From these findings recommendations will be made that can help and support mothers in making healthier food choices for their children.

The results of the primary and secondary objectives are discussed simultaneously where applicable.

4.2 KNOWLEDGE, ATTITUDE AND PRACTICES OF MOTHERS REGARDING HEALTHY AND UNHEALTHY FOOD

Nutrition-related knowledge can include three different types of knowledge. The first being awareness of e.g. diet-disease relationships, the second being knowledge of nutrition principles and the third being the how-to knowledge e.g. how to prepare a healthy meal.¹⁰⁴ The self-administered questionnaire included questions that investigated knowledge, attitude and practices related to food purchasing. Knowledge can provide an individual with the information to facilitate behaviour change, whereas attitude may determine whether the individual is motivated to make the change.¹⁰⁴ In addition, attitude can also play an important role in shaping behavior. Therefore the questionnaire also included questions related to the attitude of participants towards healthy eating.

4.2.1 KNOWLEDGE

Nutrition knowledge of mothers for the whole group could be considered as fairly good with an average score of 68%, however almost a third of the study population obtained lower scores. Some gaps in the knowledge of mothers on certain aspects of healthy eating were identified. Almost two thirds of the mothers thought that white bread is healthier when toasted and that brown sugar is healthier than white sugar. With regard to low fat products most mothers did not know that a low fat product should contain less than 3g of fat.

Even though mothers indicated that they sometimes refer to the nutrition information on the product, they might not be able to use it correctly because they do not understand it and lack the knowledge to interpret it as confirmed by the low score for the question related to the grams of fat in low fat products.^{78,105} Basic nutrition knowledge is a precondition for correct identification of information on the food labels.¹⁰⁴

The consequence of this lack of basic knowledge have cost and health implications as brown sugar costs slightly more than white sugar and the misperception regarding toasting white bread can lead to a lower fiber intake in children. The self-administered questionnaire included only thirteen health related questions and it is possible that more misperceptions exist. Therefore the fairly good nutrition knowledge score should be interpreted with caution.

Best scores were obtained for questions pertaining to eating fruit and vegetables daily, the importance of exercise, fried products are less healthy and that fizzy cool drinks are unhealthy. All of these questions related directly to the messages conveyed through the Food Based Dietary Guidelines (FBDG) and could possibly show that mothers take note and are aware of these health messages.³ Unfortunately this study did not evaluate mother's awareness of FBDG and therefore the evidence is not convincing enough to draw such a conclusion. Even though mothers knew that fried foods are less healthy they still used oil regularly when preparing meals. This could also strengthen the idea that knowledge does not necessarily translate into correct food purchasing or preparation practices as mothers knew that fried food are less healthy but it did not change their behavior when preparing food.¹⁰¹

Higher levels of parental education and income were positively associated with higher nutrition knowledge scores. These results are in line with findings of the SANHANES-1 study and other international studies.^{10,46} Wardle et al. reported that higher levels of nutrition knowledge was positively associated with healthy eating behaviour.¹⁰⁶ People with higher levels of nutrition knowledge were 25 times more likely to eat healthily compared to those with lower levels of nutrition knowledge.¹⁰⁶ There is a greater need for nutrition education among the mothers from lower socio-economic groups. Turell et al. also reported a significant association between education and dietary knowledge. The participants who did not have a tertiary qualification and those from the lower quintile school were less likely to purchase food high in fiber and low in salt, sugar and fat as suggested by health messages such as the FBDG.¹⁰⁷

Mothers in this study reported that the most used media source for obtaining nutrition information was magazines, health professionals and television. Mothers also mentioned that they obtained nutrition related knowledge at their workplace, highlighting the importance of the workplace as a source of nutrition information for working mothers. The latter could be a possible explanation for the better nutrition knowledge scores obtained by working mothers.

In a study conducted by Charlton et al. amongst black urban South African women the radio and TV was the most frequently encountered source of nutrition information. Magazines was listed as the third most used source of nutrition information.⁹⁵ Mothers from School B and C also mentioned the internet as a source of nutrition information.

The lack of nutrition knowledge can possibly impact the health of children negatively. Mothers expressed the need to be informed and knowledgeable about healthy food choices but agreed that is not always possible to apply the knowledge they have and to put it into practice due to barriers that will be discussed in section 4.5. Thus, the impact of nutrition knowledge alone might not be enough to influence food choices made by mothers.

People can only change habits if they are informed hence, the importance of nutrition knowledge and the methods and tools used to convey it cannot be overlooked and is an important starting point to assist mothers to make informed decisions and healthier food choices.¹⁰⁶

Mothers displayed a very good understanding of the fact that overweight can lead to Diabetes Mellitus as seen by high scores obtained for this statement. They also knew that active children have a smaller chance of becoming overweight, implying that they are aware of the importance of increasing children's activity levels. The question relating to childhood obesity that can lead to adult obesity was answered the poorest by all three groups of mothers. Even though the scores were high it can be argued that mothers prioritize the immediate effect of childhood obesity more than the long term consequences or that they are not aware of the link between childhood obesity, adult obesity and the development of NCDs.

4.2.2 ATTITUDE

A positive attitude of mothers towards healthful eating and nutritious food choices is associated with higher diet quality amongst people from different socio-economic backgrounds.¹⁰⁸ Therefore this study aimed at investigating the attitude of mothers towards healthy eating. Questions mainly investigated their attitude towards who are responsible for teaching children about healthy eating e.g. themselves or the school, as well as their attitude towards unhealthy foods. A discussion of the results pertaining to attitude follows according to the statements provided in the questionnaire.

“A child that is not overweight can eat sweets and chocolates daily without developing health problems”

It is important to know what mothers' attitude is towards the consumption of sweets and chocolates to be able to focus and direct nutrition intervention and nutrition education accordingly.

Mothers were aware of the fact that too much sugar from sweets and chocolates can be harmful to a child's health regardless of the child being overweight or not. Interesting though is that when

knowledge was tested, a third of the study population agreed that growing children need a lot of sugar, contradicting the results pertaining to attitude towards this statement.

Significantly more mothers from School A agreed or strongly agreed with this statement compared to mothers from School B and C. These results could indicate a greater lack of knowledge on the dangers of unhealthy eating amongst mothers of School A, the quintile one school. This finding was strengthened by the lower nutrition knowledge score amongst mothers from the quintile one school and specifically pertaining to the question that growing children need a lot of sugar.

Mothers from School C specifically referred to controlling the amount or portions of treats (sweet, chips, chocolates) rather than not giving it at all. This aspect of portion control may be explained by a higher nutrition knowledge and education level of these mothers.

“My eating habits have a direct influence on my child’s eating habits”

Most mothers agreed that their eating habits have a direct influence on how and what their children eat. Thus, when changing the attitude of mothers towards healthier eating it could possibly have a spillover effect on their children.⁵⁸ This finding is extremely positive if interpreted against the background of the role mothers play in shaping their children’s eating behaviour. During the focus group discussions mothers agreed that you cannot expect your child to have better eating habits if you don’t set the example. Parents must not only provide healthy foods at home, but also eat the food themselves.⁵⁸

More mothers from the lower quintile School A did not agree with the statement implying that they do not feel responsible for what their children eat or are less concerned about their children’s diet. Therefore nutrition education campaigns should aim to increase their awareness of mothers regarding the influence their eating habits have on their children especially in lower socio-economic groups.

The highest percentage of mothers from School C strongly agreed with the statement implying that they are aware of the important impact that their eating habits have on their children and that they take full responsibility for what their children eat. Lindsay et al. explains that if parents understand their role in influencing their children’s dietary behavior better, they will be more willing to learn how to create a healthful nutrition environment at home, regardless of their socio-economic status.¹⁴

“It is better to eat a packet of chips than to eat nothing at all”

Mothers from the lower quintile Schools A and B agreed more with this statement compared to mothers from the higher quintile School C. This implies that mothers from lower socio-economic groups are less concerned about the health of a product as long as the child eats something. A packet of chips costing only 50 cents might be the only available and affordable food item, implying that financial constraints can impact negatively on the attitude towards healthy eating. Inglis et al. reported that mothers from higher socio-economic groups rate the nutritional value and health of a

product as more important when choosing a product.⁵¹ This can have an impact on the health of children if the attitude of mothers towards unhealthy food is not addressed.

However, parents from lower socio-economic groups might not have access to alternative healthier food options. It is generally true that unhealthy food is cheaper and therefore easier to choose as mothers have to make ends meet with the available money they have.³ This could explain the difference in responses to the above question between different quintiles. Income is an important predictor of eating patterns. Diets of children and adolescents in lower socio-economic groups tend to be higher in fat and sugar and lower in fruit and vegetables.²⁴

“If my child partakes in school sport I am less concerned about his/her diet”

Most mothers disagreed with this statement implying that they did not connect a child’s diet and physical activity to each other. It can be concluded that they feel that a child’s diet should be optimal, regardless of whether they are active or not. No question was asked to determine whether mothers were aware of the fact that physical activity can be beneficial for weight control of children.

It can also indicate that participation in school sport was not rated to be important in the health of children. Children who are less active or do not take part in school sport are more prone to being overweight.¹⁰⁹ Awareness campaigns to change parent’s attitude and increase awareness about the health benefits of increasing physical activity should be a priority for policy makers and health promotion role players.^{92,106}

“It is the responsibility of schools to teach our children about healthy eating habits”

Significantly more mothers disagreed with the statement that the school is responsible to teach children about healthy eating habits. This is a positive finding that implies that most mothers realize their responsibility towards teaching children about healthy eating habits. It cannot be ignored that almost double the percentage of mothers from School A felt that it is the schools’ responsibility to teach their children about healthy eating, diverting their responsibility. These mothers obtained the lowest nutrition knowledge score and might not feel equipped to teach their children about healthy eating. These results are similar to the results of a previous question pertaining to the influence of their eating habits on the eating habits of their children, where more mothers of School A felt that their eating habits does not influence the eating habits of their children. It is important to keep this trend in mind when developing educational material targeting lower socio-economic groups.

According to Steyn et al. there is convincing evidence that school curriculums that include nutrition as part of the curriculum improves children’s knowledge and dietary behaviour.⁶⁰ Most of these studies were conducted in primary schools. The Eat Well and Keep Moving campaign is one successful example.¹¹⁰ Therefore, if parents, especially from lower socio-economic groups feel it is the schools

responsibility to educate their children on healthy eating, the school curriculum should be utilised to serve as a nutrition education tool.

Teachers can play an important role in encouraging children to eat healthier but also to work through children to encourage mothers to make healthier food choices. Regardless of the foods offered at home, the teacher has the opportunity to promote the selection and enjoyment of a variety of foods.¹¹¹

“The message through the media influences my food choice”

Mothers seem to agree that the messages conveyed through the media influence their food choices. Media messages also influence the food choices of their children and that they as mothers have to compete with those advertised messages e.g. toys in cereal boxes or at take away restaurants. Yu et al. reported similar results.⁷¹ Mothers felt that the media encourages unhealthy eating habits and lead to the nagging behaviour of their children.⁷¹ Mothers also referred to toys and gimmicks that mislead the children. During the focus group discussion mothers further explained that the children want the toys and not necessarily the hamburger.

Nevertheless, the media can be a very powerful tool to convey health messages to the population and should be used more as an educational tool to promote healthy living and eating.^{63,112} Wakefield et al. reported that mass media campaigns can produce positive changes or prevent negative changes in health related behaviours.¹¹²

Mothers from School B and C were more aware of specials at family restaurants, possibly because of effective advertising campaigns and the closer proximity of these family restaurants in their environment. In comparison, mothers from School A are not exposed to these advertisements at the same frequency or they might not be targeted as much. Family restaurants are also not situated directly in the area where they live. Mothers from lower socio-economic groups might be less vulnerable to these specials at restaurants and fast food outlets due to financial barriers.

It is therefore of extreme importance that the nutrition information translated through media is correct and that advertising of unhealthy foods and eating habits is minimized or prohibited.¹¹³ These results are important and place an enormous responsibility on magazine editors and TV advertising to communicate the correct nutrition information to the public. Mothers trust this information and great harm can be done if messages are unscientific and misleading, especially in lower socio-economic groups with lower educational levels. Magazines and TV could thus be a very effective education medium for a large part of the population. It is important that messages should be adapted to suit different target populations. Another positive implication is that nutrition educators should use the media as a potentially wide-reaching way of disseminating nutrition messages.⁹⁵

Resolution WHA63.14 and guideline 14 in R429: Criteria for the commercial marketing of foods and non-alcoholic beverages to children, aim to reduce the impact of cross-border marketing of foods high

in saturated fats, trans-fatty acids, free sugars or salt.^{80,83} Included in these recommendations are suggestions to prohibit the marketing of unhealthy food during the entire school going years from grade 0-12 at schools as well as the use of tokens, gifts or collectable items which appeal to children.⁸³ In addition to recommendations mentioned the Foodstuffs, Cosmetic and Disinfectant act, R991 (act 54 of 1972) include regulations related to foodstuffs for infants and young children specifically younger than three years.¹¹⁴ This regulation refers specifically to infant formula and follow-up formulas for young children with the aim to prevent misleading and false information to the consumer. For example, this regulation states that the label of formula feed should explicitly state that breast milk is the best for your baby.¹¹⁴

4.2.3 PRACTICES

Food purchasing practices of mothers can be seen as the how-to knowledge as described by Guthrie.¹⁰⁴ For example, why mothers choose certain food products, what mothers pack inside lunch boxes and how mothers prepare food can all have an influence on the health of children. This study aimed at investigating practices related to healthy food choices. In addition it also further investigated whether socio-economic groups differ in their food purchasing behaviour. The results of the section pertaining to practices are discussed below according to the statements provided in the questionnaire.

Practices related to the use of food labels and product packaging

More than half of the mothers of the whole group indicated that they read food labels, however focus group discussions revealed that mothers do not understand or use the nutrition labels optimally. These findings contradict each other. Mothers in the study explained that they look at food labels “for tartrazine”, “expiry dates” or if “someone is allergic to something”. These results are similar to the findings of Maubach et al. and Jacobs et al.^{76,78} Time constraints, very small print on the labels and the perception that products with logos and health claims cost more, were also mentioned as reasons for not reading food labels.^{76,79}

However even though mothers were positive and expressed a need to know how to use food labels in order to make healthier choices, food labels did not seem to influence the food choices made by mothers in this study and added little value to making healthier choices. Another observation was that more mothers from School C disagreed that they read food labels before choosing a product. Mothers in this group had better nutrition knowledge and made informed decisions based on their existing knowledge. A higher percentage of mothers in School C were also employed and time constraints when doing food purchases might result in not reading food labels. This result contradicts the findings of other researchers that reported a positive association with higher levels of education as seen in higher socio-economic groups and the use of food labels.⁷⁹ These results can have implications when designing nutrition labels for products, especially for the purpose of informing the consumer.⁷⁹ The fact that mothers from the lower quintile school indicated that they want to use food labels can be

indicative of a need for more information on food products, since they do have lower levels of basic nutrition knowledge as revealed by the results of the self-administered questionnaire.

In addition to this, mothers were in agreement that the presentation and appearance of a product would have no impact on their food choice. This is an interesting finding as companies spend millions of rands on the presentation of a product to increase sales, but this finding shows that it did not have any impact on food choices made by mothers of this group. Mothers also had the perception that the more “attractive” the packaging the more expensive the product will be. A suggestion would be to keep packaging simpler and have easy to read logos that are eye catching and give correct information about the product. The newly proposed draft labeling regulation act R429 of May 2014 includes these recommendations.⁸³ It seems as if logos or statement/claims on products can have more value than the nutrition labels per se and should be considered when the packaging of products are designed. Logos or claims are also easier to read and to see, a quick method to assess a product.⁷⁶

Most mothers could relate to short messages such as “low fat” indicated on a product once again implying that short messages or logos are more useful in conveying information about a product. One of the new FBDG is: “Use fats sparingly: choose vegetable oils rather the hard fats”. Currently the focus has moved from the total amount of fat to the type of fat consumed. It might have implications for the food industry as it would be more aligned with the FBDG if labels read “low in hard fat or saturated fat.”¹¹⁴ This could be addressed by the newly proposed labeling legislation act R429.⁸³

Practices related to tuck shop money and lunch boxes

Information obtained from the questionnaire showed that practices regarding this statement differed significantly between mothers. More mothers of School A indicated that they give tuck shop money to their children; however School A did not have a tuck shop. Mothers referred to the informal vendors selling chips and sweets outside the school grounds. A school feeding scheme was implemented at School A and therefore mothers did not have to send a lunch box to school. Most of these children also went directly home after school compared to children from School B and C that made use of aftercare facilities.

When interpreting these results it is important to take into account the average amount of money given daily or weekly. Children from School B and C received almost double the amount of tuck shop money per week compared to children from School A. Additionally more mothers from School B and C indicated that they give tuck shop money on a more regular basis, once or twice per week. This has implications as shown in the study by Wiles et al. (2013) that children from higher quintile schools who visited the tuck shop more often had higher body mass indexes compared to those children who did not.³⁵

The average amount of tuck shop money (R8.05 per week) given to children in this study was less per day compared to recent results of Wiles et al. (2013) and SANHANES-1 study where averages of R8.38 and R5.75 per day were reported.^{10,35} The provision of tuck shop money, regardless of the amount can still promote and enhance a culture of unhealthy purchasing habits and food choices at home and outside the school environment especially if healthier food options are not available.

The results that less mothers from Schools B and C gave tuck shop money can be explained by the fact that these children took lunch boxes to school and did not need tuck shop money. This is confirmed by the findings that more mothers disagreed that they give lunch box and tuck shop money on the same day. The results of this study correlate with the Wiles study where 80% of children in quintile five schools brought food from home; however most of them also purchased additional items at the tuck shop.³⁵

As expected children with working mothers received almost double the amount of tuck shop money compared to children of non-working mothers. This could have an impact on the children's health as working mothers might be those who also pack a lunch box and give additional tuck shop money. Working mothers explained that they feel guilty, are pressed for time and that the day is very long for their children. Therefore they compromise by giving their children money for the tuck shop to treat them although they do not have control over the choices their children will make at the tuck shop. Even though most mothers of School B and C expressed their concern about the unhealthy food options available at tuck shops, convenience and time saving advantages can be more important than the actual health of a product.

Practices related to the preparation methods

Mothers from all three school categories were of opinion that they knew how to prepare healthy meals and were not in need of more knowledge regarding this matter. Mothers in this study felt different compared to mothers in the study by Hollywood et al.⁵⁸ However, as identified in the knowledge section of the questionnaire, some mothers had incorrect ideas regarding healthy eating e.g. white bread is healthier when toasted, so they might not know that they lack knowledge.

The cooking method used for meal preparation can also contribute to a healthy or unhealthy lifestyle. More mothers from the quintile one school used oil regularly when preparing meals and added sugar and margarine to vegetables to make them more palatable and acceptable for their children. These practices could lead to the addition of empty extra kilojoules to the child's diet, especially in the presence of inactivity that could contribute to overweight in children. Mothers seem to agree that the only way their children will eat vegetables is by disguising it with sugar and sauces. It would therefore be valuable to suggest healthier strategies to increase vegetable intake in children such as adding it to "potjiekos" or stews, as described by some mothers. It could also be helpful to teach mothers alternative cooking methods other than using oil. Mothers did not seem to think it is unhealthy to

prepare food by deep-fat frying it, contradicting the fact that they knew that too much oily food is unhealthy. The addition of sugar to vegetables could create and sustain a preference for sweet foods in children due to learned food preferences formed by continuous exposure to a specific food or taste. This practice could contribute to obesity in adulthood.¹¹⁶

Practices related to rewarding children

If food is given as a reward or has a positive association e.g. when my mother comes to fetch me she gives me a chocolate, there is a significant increase in preference.¹¹⁶ More working mothers agreed that they do reward or treat their children with sweets and chocolates. It can be debated that they compromise for not being at home by buying treats for their kids or it could be a matter of them having some extra money to afford these treats.

Benton warns that the danger with this behaviour is that children form an emotional connection with sweets and chocolates that create poor eating habits which continue into adulthood.¹¹⁶ Typically foods used as rewards are high in sugar, fat and salt and may enhance preference for these foods in a child's diet.^{116,117} During the focus group discussions mothers agreed that sweets and chocolate, the "luxuries", are unnecessary whilst other mothers thought that it is okay to eat sweets and chocolates as long as you control the amount you eat. They mentioned that they will include it in their children's lunch boxes because it is not expensive and something "nice". Mothers should be made aware of the long-term consequences of creating bad eating habits. This could possibly have implications, especially for children of working mothers, because implementing a rewards or treat system can foster unhealthy eating habits and influence the child's weight status.²⁸

Practices related to cost and choice of cool drink

Many misperceptions regarding which cool drink is best for children exist amongst mothers. Mothers were unaware of the high sugar content in sugar sweetened beverages (SSB) and cool drink concentrates. They were of opinion that cool drink concentrates is healthier because it gets diluted with water, and additionally is cheaper and lasts longer. Plain water and bottled water were reported as the third and fourth choices when making choices of drinks for their children. Mothers mentioned that children did not want to drink plain tap water and explained that they would be acting against their wishes when providing plain water. The same finding was reported by Hoare et al.¹¹⁸

The perception that cool drink concentrates is a healthy cool drink option can be problematic as these concentrates also contain high levels of added sugar. The NFCS reported that the most commonly consumed source of added sugar in the diet came from table sugar followed by cool drink concentrates.¹¹⁹ Furthermore, mothers were more concerned about the gas in the SSB than the sugar content indicating that they might not be aware of the health implications due to the high sugar content.

The high intake of SSB e.g. fizzy drinks and cool drink concentrates is associated with childhood obesity due to an excessive energy intake.^{14,117,120} Research has shown that children who consume more than two cups of SSB per week are 1.3% times more likely to be overweight.¹¹⁷ Therefore it is of extreme importance to educate mothers about limiting the intake and availability of these beverages at home.¹⁴ Mothers should be educated about suggesting healthier drink options such as water.

Another significant finding was that cool drink concentrates were purchased significantly more often by working mothers. This could be because they have to provide cool drink for school and aftercare. Practically SSB e.g. fizzy drinks are messy and cool drink concentrate works better if taken to school as explained during focus groups discussions. This could have implications for the health and weight status of children of working mothers.

Although this study did not investigate where most of these drinks were consumed, Hoare et al. found that most of these drinks were consumed outside the home.¹¹⁸ Clifton et al. reported that smaller children aged 2 – 26 months consume most SSB at home.¹²¹ Recommendations to increase the availability and accessibility of water at home and outside the home environment e.g. at school and to make it more appealing to children should be investigated and implemented.¹¹⁸

4.3 FACTORS INFLUENCING FOOD CHOICES OF MOTHERS WITH CHILDREN IN PRIMARY SCHOOL

Several factors can have an influence on the food choices which mothers make. Personal knowledge, beliefs and attitudes can influence food choice as discussed before. Apart from these factors mentioned before social and environmental determinants e.g. food availability and accessibility and family preference as well as economic determinants e.g. cost, education and time constraints, also have an influence on food choice. Four factors identified from the self-administered questionnaire namely price, nutritional value, time and convenience and taste and child preference are discussed below.

Price of food items

The price of food products was reported to be the most important factor influencing the food choice of mothers in all three schools. This result is similar to the findings of the SANHANES-1 study where 64% of the study population regarded price as the major contributing factor influencing food choice.¹⁰ The impact of price however was more significant in the lower quintile School A. Lower socio-economic groups are more vulnerable to price fluctuations. Less healthy, energy dense food cost less and it can be expected to be the first choice of food purchased, especially in the lower socio-economic groups.^{49,122} Mothers from School A reported that fruit and vegetables were expensive. Darmon reported that even though mothers know that fruit and vegetables are necessary and healthy to eat, they would not purchase it before purchasing staple food such as bread and sugar and some

meat.^{49,122} This might also be the practice of mothers in this study and impact negatively on their and their children's health.

Pamphlets advertising sale items were looked at frequently and mothers would rather choose those products that are on sale thus saving some money. The effect of food cost on food choice and healthy eating cannot be overlooked and drastic measures should be implemented by the government and the food industry to curb the rising prices of healthy food. Mothers from especially lower socio-economic groups should not only be educated but also practically shown how to make the healthiest, cost effective choices with the available money and other resources they have.⁴⁷ Another suggestion would be to have more healthy food products on promotion thus attempting to increase the purchases thereof.

Mothers were of the opinion that unhealthy food items are relatively cheap and affordable, making it easier to purchase those items not only for them but for their children as well. "Junk food" items and high sugar options that are served at the school tuck shops were given as examples. One mother explained that fruit costs more than sweets and therefore the kids will opt for the cheaper option because they can buy sweets with the R2 that they have. Therefore not only the cost of healthy food but also the lower cost of unhealthy food seems to be a barrier when making food choices.

The majority of mothers were of the opinion that it is not expensive to prepare healthy meals. It is however worth mentioning that a higher percentage of mothers from School C agreed with the statement. It would be expected that mothers from higher quintile groups are less concerned about the cost of food products. However, it can also mean that they are more aware of the cost of food and are exposed to a wider variety of more expensive products, but can afford to buy it although it is expensive.⁵¹ The SANHANES-1 study reported that the nutritional value of a product only influenced 14.3% of women's food choices.¹⁰ Another explanation can be that mothers from lower socio-economic groups are exposed to a smaller variety of healthy food and are not really aware of what healthy food cost because they have access to a smaller variety of products.⁴⁷

Mothers of School A, the lower quintile school indicated that the fruit and vegetable they buy from informal vendors, sometimes the only suppliers in their immediate area, are more expensive compared to fruit and vegetable prices in town or bigger shops. As fruit and vegetables were identified as the ultimate healthy food this result contradicts the results obtained from the questionnaire. Mothers from the lower quintile school could have been too proud to say that they don't have the financial resources to purchase a variety of healthy food options regularly.

Although it is expected that unemployed mothers would feel that healthy meals is more expensive this was not the case. This is an encouraging finding especially in the lower socio-economic groups and implies that mothers are positive about eating healthy and feel that it is possible to eat healthy even with limited resources. Non-working mothers explained that having extra money would not necessarily

translate into buying healthier food, but rather unnecessary luxury items that are usually the unhealthier items.

Nutritive value

Mothers from all three school categories reported nutritive value to be the second most important factor influencing their food choice. It is possible that mothers answered what they thought the correct answer should be, keeping in mind that they knew what the study was about. The SANHANES-1 study reported that only 14.3% of women considered the healthfulness of a product to influence their food choice.¹⁰ Mothers from School C viewed the nutritional value more important compared to a much smaller percentage of mothers from School A and B. This finding is in line with previous findings that indicated that mothers from School A are less concerned about healthfulness of a product as long as there is something to eat. This could have an impact on the eating habits and health of children in lower quintile schools.

Time and convenience

For mothers from School C the lack of time for preparing meals was ranked as the third most important factor. This finding is somewhat different to the findings of the SANHANES-1 study where only 9.6% of the participants reported that the convenience of a product would indirectly save time would influence their food choice.¹⁰ A possible explanation for this could be that most mothers from School C were employed and that they had less time to cook meals from scratch, therefore opting for convenience or readymade products. Unfortunately these foods are mostly high in fat and sugar. Mothers from School A seemed to have a better support system at home for example grandmothers who could prepare and buy food while they were at work.

Nutritional advice usually focuses on what to eat, with less emphasis on how to incorporate that advice into busy daily lives. Tired mothers that come home from work hardly have the energy or time to prepare meals as explained by focus group participants. The food industry has responded and capitalized to this need, but most options focus on convenience and not the healthfulness of a product.^{40,123}

The main driver for buying take aways was to treat the family and to treat themselves. During the discussion all mothers agreed that it is not healthy to eat too many take aways, but that sometimes it is just the easiest option. Only mothers from School B and C, the higher quintile schools, mentioned take aways in a time saving context. With regards to employment status significantly more working mothers were motivated by the lack of time to purchase take aways. Devine et al. described this practice as a coping mechanism to curb work fatigue, treat the family or to have a relaxed time together in order to compensate for the lack of time in a working mother's day.⁴⁰ If these coping strategies are regularly relied on then it could have a negative impact on the health of adults and

children as it increases the exposure to high fat, salt and sugary foods. The need to manufacture healthier convenience foods should remain a priority for the food industry.

Taste and child preference

Taste was listed as the least important factor to influence food purchasing choices by mothers from all three schools. This is contradictory to the findings of the SANHANES-1 study and the study conducted by Charlton et al. in which taste was listed as the second and first most important factor to influence food choice.^{10,95} In this study taste played a more important role for mothers from School C. This might be explained by the fact that there were more working mothers in the quintile 5 school and that they compensate for not being at home during the day by rather purchasing the food items which their children prefer in order to satisfy everyone and avoid conflict. During the focus group discussions non-working mothers had the attitude that children should eat the food they prepared because that is all there is. Non-working mothers might not have the financial resources to be able to choose products according to their children's preferences, but rather purchase basic food products that are needed.

From mothers' responses to a similar question, that they know how to prepare healthy meals but their family members have different ideas, it was also clear that family preference had a big impact on the food they buy and that this factor might be more important than the health of a product.

Almost half of the study population agreed that they would rather choose products that their children eat even if it is not the healthiest option. This implies that children's preference is an important factor that influences a mother's food purchases. Mothers of School B and C indicated that they would still buy certain vegetables even if their children do not want to eat it, indicating that they realize the health benefits thereof and will continue try to increase their children's intake thereof. In terms of variety of vegetables it can be concluded that those vegetables that you can sweeten work best, as well as spinach and cabbage that you can camouflage in a stew or serve with cheese sauce.

Mothers are vulnerable to the pressure from their children, but if the child's attitude towards fruit and vegetables can be changed in schools and through the media it would make it easier for the mothers to implement what they know with regards to healthy eating.¹¹³

Maubach et al. reported that accommodating taste preference was closely linked to avoiding conflict with children.⁷⁶ In this study mothers described this as children nagging them about unhealthy food and that they sometime embarrassed them and put them on the spot.

Another explanation for the above that emerged during the discussions was that mothers were concerned about wasting food and that they would rather buy what they know everyone will eat to avoid food wasting. Mothers explained that wasting food meant wasting money. The same finding was reported by Zachary et al.⁵²

Working mothers are influenced more by the taste preference of their children and this could negatively impact on the health of children. Mothers should be equipped to handle pressure from their children better and be given alternative strategies through nutrition education campaigns and workshops to overcome the influence of children's unhealthy food preferences.

4.4 BARRIERS TO MAKING HEALTHY FOOD CHOICES

Participants were asked to explain circumstances or instances that made it difficult to make healthy food choices. Barriers can also be factors that influence food decision making. In this study the availability of healthy food options, peer pressure, mixed media messages, mothers' employment status, the layout of supermarkets and the school environment, were identified as barriers when making food choices.

Availability of healthy food

The limited availability of healthy food was also mentioned by mothers from School A. The availability affected either the cost of, for example vegetables in their immediate area, or lead to greater financial expenses if mothers had to travel to purchase items at a lower price, defeating the purpose because of high travelling costs. Temple is of the opinion that even if residents from lower socio-economic groups are willing to purchase healthy food they would have to be extremely motivated if the healthier options are not freely available locally.^{3,52} For people from lower socio-economic groups, decision-making is influenced more by external constraints compared to people from higher socio-economic groups with more available and flexible resources.⁴⁹

Peer pressure

During the focus group discussions mothers mentioned that children did not want to eat fruit at school because the older children would take it from them. They also mentioned that it is "cool" for children to purchase something from the tuck shop and that their kids would put pressure on them to give them some money for tuck shop purchases. Mothers explained that their children would tell them what other kids get in their lunch boxes and that they want the same, regardless of the nutritional value thereof. Wiles et al. reported that peers were voted the third highest factor influencing tuck shop purchases.³⁵ In comparison, Finnerty et al. reported that pre-adolescent peers were less likely to influence dietary intake and more likely to influence physical activity.¹²⁴ Methods to strengthen social skills of children to counteract peer pressure should be included in the school curriculum. Peers can also have a positive influence on each other which might be an aspect to explore in future.

Mixed media messages

It is important to recognize the role which the media play with regards to nutrition knowledge translation. Not only the media, but health care professionals have the responsibility to the public to

distribute correct and consistent nutrition information and advice. Health care professionals are seen as credible sources of nutrition information.⁹⁵ The negative implication of the media as rightly mentioned by mothers, is that people trust nutrition information that is not always scientific, that it can be confusing or designed in such a way to promote the deceitful sales of a product without taking into account the impact on the individual's health.¹¹³ In this study mothers from School B and C identified mixed messages from the media as a potential barrier when wanting to make healthy food choices.

Findings of this study showed that more than fifty percent of the study population was aware of media messages and referred to them, specifically the messages from magazines. Therefore, nutrition educators should utilize magazines to disseminate nutrition messages to a wide reaching audience.^{95,113}

Mothers' employment status

Information obtained from the focus groups discussions clearly showed that being employed has an impact on food choice and preparation methods. Non-working mothers acknowledged the fact that they have more time to plan and prepare meals and that they are "fresher" in the evening when it comes to meal preparation. They did not necessarily feel financially disadvantaged because they did not work. Working mothers had less time, reported that they depend on take aways more and that it might even be cheaper than preparing a meal. The impact of employment status was observed more in the higher quintile schools B and C. Working mothers from School A had a stronger support system as they frequently referred to their mother or others family members looking after the children or even preparing meals while they were at work. The responsibility of meal preparation was divided between the mother's support structure and the mothers themselves, taking of some of the pressure of meal preparation for the mothers from the lower quintile school.

Differences between working and non-working mothers were seen in the motivation for buying take aways, whether it be to treat the family or treat themselves. This factor is a direct result of employment status and thus being a working mother could be a barrier to eating healthily. Devine et al. described these habits as coping strategies to compensate for the lack of time in a working mother's day.⁴⁰ If these coping strategies are regularly relied on then it could have a negative impact on the health of adults and children. During the focus group discussions it also became evident that working mothers are more lenient when it comes to giving sweets and chocolates as a treat for their children. This could lead to unhealthy eating habits in children.

Mothers from higher socio-economic groups seemed to refer to a family meal when eating out where she can relax and enjoy a meal with the rest of her family.^{40,42} The type of food offered at restaurants is typically of lower nutritional quality and can have implications for the health of children due to the low vegetable content and high fat content thereof.⁴⁰

The ability to participate in school sport activities was also influenced by the employment status of mothers. Being employed can be seen as a barrier for children to partake in school sport, especially in middle and higher quintile schools because of a lack of supervision after school and lack of transport to and from sporting activities. Non-working mothers described alternative methods such as walking or Zumba with the family but no reference to such activities was made by working mothers in any of the three groups, possibly because it was not seen as a priority or because they did not have the time. Research has shown that children who are not physically active have a greater chance of becoming overweight or obese.⁴⁴ In a study conducted by Truter et al. on children aged nine to twelve, it was shown that health enhancing physical fitness was negatively affected by overweight and obesity in children.¹²⁵

In summary it can be concluded that the employment status of mothers can indirectly affect the health status of her children by increasing the probability of being overweight and suffering from obesity due to poor eating habits due to a lack of time. Similar results were found by Kirsten et al. where children with working mothers (more than 36 hours per week) had a greater risk of becoming overweight or obese.⁴⁴

Layout of the supermarket

During the focus group discussions mothers from School C mentioned that the layout of the supermarket could assist in making healthier choices. All mothers expressed agreement and also referred to the fact that healthier options should be more prominently displayed in the supermarkets and suggested having a health aisle in the supermarket. Focus group participants in a study conducted by Zachary et al. made similar suggestion with regards to the layout of the supermarket. These participants also suggested taste test sections in supermarkets to increase their confidence in purchasing a new product to make sure that it will not go to waste.⁵² Mothers from School A, the lower quintile school, who shop at informal vendors mentioned that the informal vendors in their community place the “fruit and vegetables at the back of their stall” and put the unhealthier options in front, making it more visible.

Mothers also explained that when they have to take their children with to do grocery shopping they usually have to pass the aisle with sweet and snacks first before they get to the fruit and vegetables or healthier options. The children then pressure them to buy unhealthy food items. Calloway et al. reported that parent-child interaction in the grocery store is estimated to contribute to one third to a half of family food purchasing decisions.⁵⁷

School environment: tuck shop

Children obtain food in many ways; the school tuck shop is one. In this study only two schools (School B and C) had a school tuck shop. School A, the lower quintile school did not have a tuck shop but learners could buy items from informal vendors outside the school playground. During the discussions

with mothers it became evident that they were concerned about the items sold at the school tuck shops, that the unhealthy items are affordable, that the variety of unhealthy options outweigh the healthy options and that they feel their opinions do not count especially if the tuck shop was privately owned. Wiles et al. reported that 81% of tuck shops in the schools studied were privately owned and that generating income and making profit is the main aim for tuck shop managers.³⁵ Mothers in this study experience pressure from their children to give them tuck shop money and that peer pressure at school can be a problem. Mothers also explained that they did not have control over what their children buy with the money that they give them. Mothers said that buying items at the school tuck shop was seen as “cool” and the children felt good if they could buy something at the tuck shop.

Mothers did not really know whether fruit could be purchased at the tuck shop but they knew that pies, chips, chip rolls and many sweets can be bought there. It was clear that they were not involved in the decisions regarding the type of food sold at the tuck shop. Some mothers indicated that they would be interested in being part of the decision making process in terms of items sold at the tuck shops.

There is value in regulating the food items and beverages sold at tuck shops. Bekker (2011) highlighted the positive influence that a nutritionally regulated tuck shop can have on learners' attitude toward fruit and vegetables.⁶² Wiles et al. recommend that tuck shop managers should also be educated regarding the appropriate quantity and quality of ingredients and Temple et al. suggest that the SAFBDG are used as a guide when educating tuck shop managers.^{35,3} Bekker recommends that parents should be involved in the decision-making process regarding the items that should be sold at the school tuck shops.⁶²

One strategy to encourage children to make healthier choices is to make healthier options more affordable. An informative study conducted in high school cafeterias in the United States tested whether cheaper prices would increase the sales of healthier food. The price of fruit and salad was halved and this resulted in a fourfold increase in the sales of fruit and a marginal increase in the sales of salad.¹²⁶

Mothers will continue to support the school tuck shops due to the convenience they offer as well as it being viewed as a treat for their children to purchase something at the tuck shop.

Poor tuck shop purchasing practices, encouraged by the availability of affordable unhealthy items, can have an impact on childhood overweight and obesity.³⁵ There is not a single simple solution to provide school children with healthier food options to prevent childhood obesity, but strategies to change the current scenario of selling high fat, high salt and high sugar containing food items should be a priority for government, school principals and dietitians.

4.5 LIMITATIONS OF THE STUDY

When interpreting the results of this study the following limitations should be considered:

- Even though schools were selected randomly the demographic representations in terms of ethnicity included few white and black participants. The white population was more representative of participants in the higher socio-economic group and those with higher levels of education. The incidence of overweight in children is higher amongst white children of a higher socio-economic status. This could influence the generalization of the study findings to mothers of various race groups.
- The questionnaire, although based on existing validated questionnaires, was not validated independently and the section pertaining to attitude had a low Cronbach's alpha score indicating lower reliability. Hence the findings should be interpreted with caution.
- The reliability and validity of data obtained from self-administered questionnaires could be lower when compared to questionnaires that were completed by trained field workers while interviewing subjects.
- The Hawthorn effect could have played a role when completing the self-administered questionnaire as participants knew the topic of the study.
- Focus group results cannot be equally applied to mothers of all race groups and different ethnicities.
- Data was not analysed according to the number of hours worked as asked in the questionnaire, however this will be possible for future analysis.

CHAPTER 5

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 SUMMARY OF FINDINGS

In this chapter the main findings of the study are summarised. Implications and recommendations for future research are discussed.

Two data collection tools, namely self-administered questionnaires and focus group discussions were used to answer the main research question of this study namely: What are the factors influencing the food choices of mothers of primary school children in the Metro North Education District of the Western Cape?

Main findings related to knowledge

With regards to nutrition knowledge mothers from the higher quintile schools had higher nutrition knowledge scores and had the highest level of education and income. Nutrition knowledge was not identified as a factor that would influence food choice. However, the importance thereof should remain a priority for dietitians and health professionals. Mothers from the lower quintile school expressed a need to know more about healthy eating whereas mothers from the higher quintile schools thought their nutrition knowledge was adequate. This study identified a window of opportunity to target mothers of lower socio-economic groups when doing nutrition education or health promotion.

Main findings related to attitude

In general mothers had a positive attitude towards healthy eating. An important finding was that mothers from the lower quintile school did not realize the impact their eating habits can have on their children. They were also of the opinion that it is the school's responsibility to teach their children about healthy eating, thereby diverting responsibility. All mothers were of the opinion that it is not expensive to prepare healthy meals regardless of their financial position.

Main findings related to practices

Mother's from the lower quintile school indicated that they read food labels more often than mothers from the higher quintile schools. However, they admitted that they have difficulty interpreting the nutrition information on the product labels and they expressed a need to understand it. It was also found that non-working mothers read nutrition labels more often because they have more time or a greater need to know more about the product due to a lower level of nutrition knowledge. Working mothers listed time constraints to be a major factor influencing their food purchases and this could explain why they did not refer to food labels that frequently.

The practice of eating out at least once a week was more evident among mothers of the higher quintile schools and working mothers. Reasons for eating out were to treat the family and to save time. Additionally the easy access to take away restaurants and relative affordability of the meals

made it an appealing option, though unhealthy. Thus the motivation for buying take aways is directly related to employment status.

Although mothers agreed that they know how to prepare healthy meals, unhealthy practices such as the regular use of oil, margarine and sugar during food preparation was identified. This finding can suggest that emphasis should not only be placed on healthy food purchases but that education regarding healthy food preparation techniques are also essential.

The type of cool drink chosen by mothers also revealed interesting findings. Mothers were of opinion that fruit juice was the healthiest option and that cool drink concentrate were healthier than sugar sweetened beverages e.g. fizzy drinks. Although mothers knew water was healthy they did not offer it to their children because the children do not prefer it. Mothers of the higher quintile school C offered normal tap water more regularly to their children compared to mothers from the lower quintile school. These mothers bought cool drinks according to the preference of their children.

Main finding related to employment status

Working mothers were better educated and might have better access to magazines, the internet and others sources of nutrition information such as the workplace that could enhance their nutrition knowledge.

Few differences were identified when comparing working to non-working mothers. The main findings were that working mothers indicated that due to a lack of time and a busy lifestyle they tend to rely more on take-away and restaurant food. Furthermore they were more exposed to pressure from their children and feelings of guilt because they spent less time with their children because they work. These feelings were sometimes compensated for by giving their children treats for school or on other occasions. The children of working mothers experienced difficulty in participating in sport because of the logistical arrangements regarding aspects such as transport and a lack of support, especially in Schools B and C.

In this study it was found that the employment status of mothers can have an impact on the food choices she makes. A lack of time and hence a need for convenience sometimes overrides their food choices and purchasing habits, despite the fact that they have a better nutrition knowledge.⁷¹

Other findings of interest

Cost and nutritional value was listed as the two most important factors influencing food choice although cost was significantly more important for mothers from the lower quintile school representing lower socio-economic groups.

In this study participants agreed that the media influence their food choices, especially the messages printed in magazines. This is an important finding which suggests that magazines should be used more often by health professionals and advertising managers to convey correct and important

nutrition information. Mothers said that mixed messages from the media can sometimes be a barrier to healthy eating especially in the higher socio-economic groups, possibly because they have access to a greater variety of mass media.

Mothers expressed a need for a more supportive environment to assist them in making healthy food choices. The school and supermarket environment was identified as two possible platforms that could assist in promoting healthy eating.

5.2 RECOMMENDATIONS TO DIFFERENT ROLE PLAYERS

The following recommendations can be made as a result of the findings of this study. Recommendations are made separately to mothers, schools, policymakers and workplaces.

Recommendations to support mothers

- Empower parents to handle conflict situations with their children regarding the purchase and consumption of unhealthy food items through nutrition education workshops.
- Increase awareness of parents on how their eating behaviour influences the eating behaviour of their children especially parents of a lower socio-economic status by having information sessions at schools, libraries and clinics.
- There should be a continuous drive to educate mothers in order to use healthier cooking methods and make healthier food choices. Workshops addressing aspects such as how to buy healthier food options on a limited budget, cooking skills workshops and cooking demonstrations should be developed. These workshops can be held at schools, libraries, supermarkets and other prominent settings within the community.

Recommendations to schools

- Involve parents in the decision-making process regarding the type of food that should be sold at school tuck shops. The school principal or school governing body could facilitate this process.
- Dietitians should be utilized more when consulting with and educating tuck shop managers and informal vendors to sell items that are in line with the SAFBDG and the school curriculum.
- Schools should be used more often for workshops or discussion groups with mothers where they can share ideas on how they make food choices and encourage each other regarding the health of their children.
- Continue with campaigns to increase children's activity levels especially at school. Physical education in schools should be implemented in all schools. This process should be driven by the Western Cape Education Department.

Recommendations to policy makers

- The food industry should take responsibility to develop healthier convenience food of a better quality that is considered to be healthier than options that are currently available. Food technologists and dietitians should be involved in recipe development and sensory evaluation processes to ensure the acceptability of new, healthier products to the public.
- Policy makers should support and initiate nutrition education campaigns to assist mothers with the interpretation of food labels and optimizing the value it can add to food decision making.
- Strict regulation of health messages that are conveyed by different media sources should be implemented such as the newly proposed R429.
- Promotional items should be linked more often to healthy food options. Promoting unhealthy food should be prohibited by legislation.
- Have campaigns to encourage children and adults to drink more water instead of buying cool drinks, fruit juice and cool drink concentrates. Make plain water more freely available and appealing to drink, especially at school tuck shops. Government, school governing bodies and tuck shop managers should all be included in the planning and implementing of these campaigns.
- Policy makers should consult with dietitians and supermarket role players to revisit the layout of supermarkets in order to increase visibility of healthier food options. This would possibly only be effective if driven by the government.
- Policymakers should monitor the gap between the rising price of healthy food and the promotion of less healthy food at a low cost.
- Increase availability and affordability of healthy food options in lower socio-economic areas as well as rural areas. This should be a priority for the policy makers and government.
- The government should implement fiscal measures to limit the consumption of foods high in fat and sugar and salt such as taxation on unhealthy foods such as fizzy drinks.

Recommendations to employers regarding the workplace

- The workplace is an ideal setting that should be utilized more frequently to convey health messages to not only mothers but all employees. For example the use of the company intranet, e-mails and pamphlets can increase awareness and serve to communicate health messages and ideas to employees, and should be utilized frequently and effectively. Dietitians should be involved in the development of education material.

5.3 FURTHER RESEARCH

As a result of this study the following suggestions can be made for further research studies.

- Future studies should be controlled for a better spread of race and ethnicity.
- Investigation into the best ways to reach mothers of a low socio-economic groups regarding the importance of healthier food choices for them and their children seeing that more affordable options are often high in fat, salt and energy and low in fiber.
- There is a need for qualitative studies exploring the attitude of food companies as well as the marketing sector regarding their responsibility towards the health of the population and their right to nutritious food and correct scientific based nutrition information.
- Investigation into the most appropriate logo to use on food products that will be cost effective and informative for all sectors of the population.
- More in-depth information on what parents see as healthy food other than fruit and vegetables.
- Research that explores the availability of a greater variety of healthy foods in lower socio-economic areas specifically from street vendors and the development of a practical guide for people in these areas to use when preparing and purchasing the available food.

5.5 SIGNIFICANCE OF RESEARCH

This is the first study in South Africa that specifically focused on the factors influencing the food choice of mothers of primary school children. The results add to the current knowledge that exists regarding factors that influence food choices but adds more depth to these factors for a specific target group being mothers of primary school children. Some new factors influencing food choices were identified. Opportunities to direct nutrition information and campaigns more effectively to mothers specifically were proposed as a result of the data collected in this study. The value that the media and school environment can add to the decision making of mothers and children was highlighted. The participating schools as well as other schools can benefit from the findings in this study and can incorporate suggestions in future planning of the school environment. This study shed some light on the impact that employment status has on the food choices employed mothers make and the possible negative consequences they can have on the health of children in the long term.

On a personal level the researcher gained invaluable experience and insight with regards to this topic that will be shared with other dietitians as well as school authorities.

5.6 CONCLUSION

Healthy lifestyle behaviours developed during childhood often lay the foundation for adult health and quality of life. To address the challenge of childhood obesity is a complex issue with different influences such as economical, social, individual and environmental. Addressing all these aspects simultaneously remains challenging and almost impossible. This study confirmed a constant need for nutrition education, especially in lower income groups. Childhood obesity campaigns should focus directly on the reduction of sugar sweetened beverages as this is a major cause of childhood obesity. Participants in this study were unaware of the negative impact that these cool drinks can have on the health of their children. Mothers from lower socio-economic groups were not aware of the impact that their eating habits have on the health of their children. They were also of the opinion that it is the responsibility of the school to educate their children regarding healthy eating. This is an area that needs attention to increase their awareness and understanding of the impact their eating habits and food choices have on their children.

Although this study did not deliver many significant differences between working and non-working mothers, one can not overlook the fact that a lack of time to prepare healthy food and the purchasing of take away food more regularly by working mothers compared to non-working mothers is obesogenic behaviour that can have an impact on the weight status and health of working mothers' children.

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ADDENDUMS

ADDENDUM A: LETTER TO WCED

Division of Human Nutrition
Department of Interdisciplinary Health Sciences
Stellenbosch University
PO box 19063
Tygerberg
7505
Cell: 079 520 5066

Western Cape Education Department
Director: Research
Private Bag X45
Parow
7500
DATE 2014

Dear Mrs. Wyngaardt

REQUEST PREMISSION TO CONTACT PRIMARY SCHOOLS FOR NUTRITION STUDY

I am currently a Master in Nutrition student at the Division of Human Nutrition at Stellenbosch University.

My research topic is: An investigation of the factors influencing the food choices of mothers of primary school children in the Metro North Education District of the Western Cape Province.

I would like to ask your permission to approach relevant Primary Schools in the Cape Metro- North Education District to participate in the study. The schools were randomly selected using the Random Number Generating Tool in Excel and one school from each national quintile was sourced for the study. The data collection period is planned for April 2014 – September 2014.

The selected schools for the pilot study are as follows:

Quintile 1-3:

Quintile 4:

The selected schools for the main study are as follow:

Quintile 1-3:

Quintile 4:

Quintile 5:

The study will entail the following:

- Permission will be obtained from the relevant school principles requesting permission to send questionnaires to the mothers of school children.
- The questionnaire will be voluntary and anonymous. Written informed consent will be obtained from participants.
- Participating school names will stay anonymous.
- Questionnaires will be collected at each school after a one week period or as arranged with the school principle.
- Focus group discussions will be held with mothers that indicated their willingness to participate in such a discussion. The discussions will be held at a prior arranged venue at the selected schools.

Attached is a copy of my research project protocol as approved by the Health Research Ethics Committee (S13 /10/ 210).

I trust that my request will receive your favourable consideration. Please feel free to contact me for any further clarification regarding the above.

Yours sincerely

Yolande Smit RD (SA)
M. NUTRITION STUDENT

yolandes@sun.ac.za

ADDENDUM B: LETTER TO SCHOOL PRINCIPAL

Division of Human Nutrition
Department of Interdisciplinary Health Sciences
Stellenbosch University
PO box 19063
Tygerberg
7505
Cell: 079 520 5066

School principle
School name
School address
DATE 2014
Dear (name of school principle)

REQUEST PREMISSION TO CONDUCT RESEARCH STUDY.

I am currently a Masters in Nutrition students at the Division of Human Nutrition of Stellenbosch University.

My research topic is: An investigation of the factors influencing the food choices of mothers of primary school children in the Metro North Education District of the Western Cape Province. As a result the study will investigate the following:

- Factors influencing food choice
- Barriers to making healthy food choices
- Knowledge, attitude and practices of mothers
- Mothers' knowledge on basic aspects of childhood obesity

Two classes per grade will be randomly selected and these children will then receive a questionnaire to give to their mothers.

The data collection period is planned for July 2014 – September 2014.

I obtained permission from the Western Cape Education Department (WCED) to contact you regarding my research.

The study will entail the following:

- After permission was obtained to conduct the study at your school the researcher will contact the school principle and arrange a meeting with the school principle to explain the study and agree on a date and time for questionnaire distribution.
- The questionnaire is voluntary and anonymous.
- Participating school names will stay anonymous.
- Two classes per grade will be randomly selected.
- Questionnaires will be distributed via the oldest and only child to the mothers.
- Questionnaires will be collected at each school after a one week period or as arranged with the school principle.
- Focus group discussion will be held with randomly selected mothers who indicated their willingness to partake in the discussion.

Attached is a copy of my research project protocol as submitted for and awaiting ethics approval.

I trust that my request will receive your favourable consideration.

Yours sincerely

Yolande Smit RD (SA)

M. NUTRITION STUDENT

yolandes@sun.ac.za

ADDENDUM C: SELF-ADMINISTERED QUESTIONNAIRE

Research Questionnaire

SP

An investigation of the factors influencing the food choices of mothers of primary school children in the Metro –North Education District of the Western Cape Province, South Africa.

Dear Parent

I am a Master of Nutrition student at Stellenbosch University. I will be conducting my research at the primary school your child/children attend.

By completing this questionnaire you agree to participate in the study and give me permission to use this information as part of my study results. Your participation will make a valuable contribution to the results of this study. **The questionnaire will take 10 minutes to complete.**

This is a survey and not a test. As a result there is no right or wrong answers. All information will be treated as confidential and anonymous.

NB: Please sign the consent form at the back of the survey before you start (marked with sticky note)

Please read the instructions before completing the questions.

1. Please answer all the questions as honestly as possible.
2. Mark all relevant boxes (☐) with an X.
3. The questionnaire should be completed only by the biological (birth) mother or primary caregiver of the child who does most of the food purchases.

Section 1

1. What is your relationship to the child	<input type="checkbox"/> Birth mother
	<input type="checkbox"/> Step mother
	<input type="checkbox"/> Foster mother
	<input type="checkbox"/> Other: please specify
2. How old are you?years
3. What is your total monthly household income (combined)?	<input type="checkbox"/> Less than R1000
	<input type="checkbox"/> R1001- R2500
	<input type="checkbox"/> R2501 –R3500
	<input type="checkbox"/> R3500 – R5500
	<input type="checkbox"/> R5501 – R9000
	<input type="checkbox"/> R9001 – R12 500
	<input type="checkbox"/> R12 501 – R16 500
	<input type="checkbox"/> More than R16 500

4. Indicate your employment status	<input type="checkbox"/> Working full time (40 hours per week)
	<input type="checkbox"/> Working part time (25 hours per week)
	<input type="checkbox"/> Work less than ten hours per week
	<input type="checkbox"/> Not working currently
5. Indicate your highest level of education	<input type="checkbox"/> Grade 7 or lower
	<input type="checkbox"/> Grade 8 -11
	<input type="checkbox"/> Grade 12 (Matric)
	<input type="checkbox"/> Higher degree/diploma
6. How many children do you have	<input type="checkbox"/> One
	<input type="checkbox"/> Two
	<input type="checkbox"/> Three
	<input type="checkbox"/> Four
	<input type="checkbox"/> Five
7. Please mark the age(s) of your child/children that are still in primary school	<input type="checkbox"/> 6
	<input type="checkbox"/> 7
	<input type="checkbox"/> 8
	<input type="checkbox"/> 9
	<input type="checkbox"/> 10
	<input type="checkbox"/> 11
	<input type="checkbox"/> 12
	<input type="checkbox"/> 13
	<input type="checkbox"/> 14
	<input type="checkbox"/> 15
8. What is your race?	<input type="checkbox"/> Black
	<input type="checkbox"/> Colored
	<input type="checkbox"/> Indian
	<input type="checkbox"/> White
	<input type="checkbox"/> Other: specify
9. After school my children:	<input type="checkbox"/> Stay at home
	<input type="checkbox"/>Stay at an aftercare facility
	<input type="checkbox"/>Other, please specify:

Sections 2

Please choose ONE answer per question. Mark your answer with and X

1. White bread is healthier when toasted.	True
	False
	Do not know
2. Growing children need a lot of sugar to have enough energy.	True
	False
	Do not know
3. Children need to eat fruit and vegetables daily.	True
	False
	Do not know
4. If children eat a healthy diet there is no need for them to do exercise.	True
	False
	Do not know
5. A glass of fruit juice is healthier than one fresh fruit.	True
	False
	Do not know
6. Fruit and vegetables are fat – free food items.	True
	False
	Do not know
7. Red meat is a good source of Iron	True
	False
	Do not know
8. Baked beans are a good source of protein	True
	False
	Do not know
9. Fried eggs (in oil) are healthier than boiled eggs (in shell).	True
	False
	Do not know
10. Low fat products contain less than 3g fat per 100g.	True
	False
	Do not know
11. Gas cool drinks such as Coke, Fanta and Cream Soda are healthy drinks	True
	False

	Do not know
12. Brown sugar and honey are healthier than white sugar.	True
	False
	Do not know
13. Cremora /Ellis Brown coffee creamers are just as healthy as milk.	True
	False
	Do not know

Section 3

Please make an X in the block that reflects your opinion most on the statements given.

1. A child that is not overweight can eat sweets and chocolates daily without developing health problems.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

2. My eating habits have a direct influence on my child's eating habits.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

3. It is better to eat a packet of chips (crisps) than to eat nothing at all.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

4. If my child partakes in school sport I am less concerned about his/her diet.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

5. Preparing healthy meals is more expensive than healthier meal options.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

6. It is the responsibility of the school to teach our children about healthy eating habits.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

7. The messages through television, radio and magazines influence my food choices.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

Sections 4

Please make an X in the block that reflects your opinion most on the statements given.

1. I read food labels to help me choose the healthiest option before I buy a product.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

2. If will rather choose a product if it is labeled low fat.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

3. I give my child/children tuck-shop money.

No, never	Yes, but only on rare occasions	Yes, only 1- 2x per week	Yes, every day
-----------	---------------------------------	--------------------------	----------------

4. How much tuck-shop money do you give your child per week? : R_____

5. I use oil regularly when I prepare meals.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

6. I add sugar and margarine to my vegetables to make it tastier for my children.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

7. I choose/buy the food I know my children will eat even if it is not the healthiest choice.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

8. I am more likely to buy fruit if it is on a special discount.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

9. I don't buy a lot of vegetables because my child (ren) won't eat it.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

10. If the package and picture of a product looks pretty I will rather choose that product.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

11. I pack a lunchbox and give my child tuck-shop money.

No, never	Yes, but only once in a while	Yes, 1 – 2 x per week	Yes ,every day
-----------	-------------------------------	-----------------------	----------------

12. I reward/treat my children with sweets/chocolates.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

13. I buy Coke, Fanta and other gas cool drinks because it is cheaper than fruit juice.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

14. We eat away from home at least once a week.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

15. I buy take- aways:

Never	Once a week	Twice a week	More than three time a week
-------	-------------	--------------	-----------------------------

16. I don't really know how to prepare healthy meals.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

17. Where do you look for information about the goodness/nutritional information on food?

	Mark with an X (can tick more than one)
Magazines	
Friends	
Children	
Television and radio	
Doctors and health professionals	
Other, please specify	

18. Which of the following drinks would you choose for your child?

Sugary and fuzzy drinks cool drinks (e.g. Coke, Sparletta, 7-up, Bashews)	
Sugar free drinks or diet drinks e.g. Tab, Diet Coke, Diet Sprite	
Fruit juice, Ceres, Liqui fruit, Quali Juice	
Bottled water (plain)	
Bottled water (flavoured)	
Oros, Halls	
Tropicana, Fiesta	

19. Why do you buy the drinks as chosen above?

.....

Section 5

Please choose ONE answer to each question. Mark your answer with and X

1. Overweight children have a greater chance of becoming overweight adults.	True
	False
	Do not know
2. Overweight children are at greater risks of developing diabetes mellitus (sugar illness)	True
	False
	Do not know
3. Active children will have a smaller chance of becoming overweight.	True
	False
	Do not know

Section 6

Please choose the most suitable answers for the questions below. (You can choose more than one answer). Mark the appropriate block with an X.

1. The biggest factor influencing my choice of food for my children is:

	Mark with an X (can tick more than one)
Lack of time	
Price/Cost	
Taste	
Healthiness/Nutritional value	
Preference/Influence from my children	

2. I buy take-aways for my family because:

Mark with an X

I don't have time to cook	
To treat them	
They are just too hungry after a long day and I have to get food on the table quickly.	
I don't know what else to prepare	
To treat myself	

3. I don't know how to prepare healthy meals.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

4. I know what healthy food is, but the rest of my family has different taste preferences.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

5. If there were more fast food shops close to my home, I would buy more take-away food.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

6. It is difficult for my child(ren) to participate in school sport activities because I work.

Not applicable, I do not work	Strongly disagree	Disagree	Agree	Strongly agree
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7. What do you think the term “healthy eating” mean?(Please describe in your own words)

Thank you.

Your participation is appreciated.

Lucky Draw

If you are willing to participate in a group discussion on the topic of food purchases please fill in the tear of slip below. By doing so you are eligible for a lucky draw prize to the value of **R200**.

Make a cross in the block applicable to you.

I am a working mother (part-time/full I am a non-working mother):..... mother:.....

Grade of child who received the questionnaire: (Mark with X)
--

Grade 1:

Grade 2:

Grade 3:

Grade 4:

Grade 5:

Grade 6:

Grade 7"

Contact number (to arrange discussion and for lucky draw purposes): _____

ADDENDUM D: SELF- GEADMINISTREERDE VRAELYS

Navorsingsvraelys

'n Onderzoek na die faktore wat voedselkeuses van moeders van laerskool kinders in die Metro-Noord Onderwysdistrik in die Wes-Kaap, Suid-Afrika beïnvloed.

Geagte ouer

Ek is tans besig met my meestersgraad in voeding aan die Universiteit Stellenbosch. Ek doen my navorsing by die skool wat u kind/ers bywoon.

Deur die invul van die vraelys verleen u toestemming om aan die studie deel te neem en dat die inligting gebruik kan word as deel van my studie resultate. U deelname sal 'n waardige bydrae maak tot die resultate van my studie.

Let asb.op dat hierdie 'n opname is en nie 'n toets nie. Daar is dus geen regte of verkeerde antwoorde nie. **Die vraelys sal ongeveer 10 minute neem om te voltooi.**

Alle inligting in die vraelys sal as anoniem en vertroulik hanteer word.

NB: Teken asb die toestemmingsvorm aan die einde van die studie voordat u met die vraelys begin (gemerk met plak papiertjie)

Lees asb die instruksies duidelik voordat u die vraelys voltooi.

1. Beantwoord al die vrae so eerlik as moontlik.
2. Merk alle blokkies(□) met 'n X.
3. Hierdie vraelys moet slegs deur die kind se biologiese moeder of primêre versorger, (stief -of pleegmoeder) wat meesal verantwoordelik is vir voedselaankope voltooi word.

Afdeling 1

1. Wat is u verwantskap met die kind?	<input type="checkbox"/> Biologiese moeder
	<input type="checkbox"/> Stiefmoeder
	<input type="checkbox"/> Pleegmoeder
	<input type="checkbox"/> Ander: spesifiseer asb
2. Wat is u ouderdom?jaar
3. Dui asb u maandelikse totale inkomste aan.	<input type="checkbox"/> Minder as R1000
	<input type="checkbox"/> R1001- R2500
	<input type="checkbox"/> R2501 –R3500
	<input type="checkbox"/> R3500 – R5500
	<input type="checkbox"/> R5501 – R9000

	<input type="checkbox"/> R9001 – R12500
	<input type="checkbox"/> R12501 – R16500
	<input type="checkbox"/> Bo R16 500
4. Dui u werkstatus aan:	<input type="checkbox"/> Werk voltyds (40 uur per week)
	<input type="checkbox"/> Werk deelyds (25 uur per week)
	<input type="checkbox"/> Werk minder as 10 ure per week
	<input type="checkbox"/> Werk nie op die oomblik nie
5. Dui u hoogste vlak van opleiding aan	<input type="checkbox"/> Graad 7 & laer
	<input type="checkbox"/> Graad 8 -11
	<input type="checkbox"/> Graad 12 (Matriek)
	<input type="checkbox"/> Graad of Diploma
6. Hoeveel kinders het u?	<input type="checkbox"/> Een
	<input type="checkbox"/> Twee
	<input type="checkbox"/> Drie
	<input type="checkbox"/> Vier
7. Merk die ouderdom van u kind/ers wat in die laerskool is	<input type="checkbox"/> 6
	<input type="checkbox"/> 7
	<input type="checkbox"/> 8
	<input type="checkbox"/> 9
	<input type="checkbox"/> 10
	<input type="checkbox"/> 11
	<input type="checkbox"/> 12
	<input type="checkbox"/> 13
	<input type="checkbox"/> 14
	<input type="checkbox"/> 15
8. Wat is u etniese oorsprong?	<input type="checkbox"/> Swart
	<input type="checkbox"/> Kleurling
	<input type="checkbox"/> Indiër
	<input type="checkbox"/> Blank
	<input type="checkbox"/> Ander
9. Na skool gaan my kinders:	<input type="checkbox"/>Huis toe
	<input type="checkbox"/>Gaan na 'n nasorgfasiliteit
	<input type="checkbox"/>Ander, spesifiseer asb:

Afdeling 2

Kies asb. een antwoord per vraag. Merk die antwoord met 'n X.

1. Witbrood is gesonder as dit gerooster is.	Waar
	Onwaar
	Weet nie
2. Groeiende kinders het baie suiker nodig om te verseker hul het genoeg energie.	Waar
	Onwaar
	Weet nie
3. Kinders moet elke dag vrugte en groente eet.	Waar
	Onwaar
	Weet nie
4. As kinders gesond eet, hoef hul nie oefening te doen nie.	Waar
	Onwaar
	Weet nie
5. Een glas vrugtesap is gesonder as een vars vrug.	Waar
	Onwaar
	Weet nie
6. Vrugte en groente is vet-vrye voedsel items.	Waar
	Onwaar
	Weet nie
7. Rooivleis in 'n goeie bron van Yster	Waar
	Onwaar
	Weet nie
8. Gebakte tamatiebone (Baked Beans) is 'n goeie bron van proteien.	Waar
	Onwaar
	Weet nie
9. Gebakte eiers (olie) is gesonder as gekookte eiers (in dop).	Waar
	Onwaar
	Weet nie
10. Lae vet produkte bevat minder as 3g vet per 100g.	Waar
	Onwaar
	Weet nie
11. Gaskoeldrank bv. Coke , Fanta en Cream Soda en is gesonde drankies.	Waar
	Onwaar

	Weet nie
12. Bruinsuiker en heuning is gesonder opsies as witsuiker.	Waar
	Onwaar
	Weet nie
13. Cremora /Ellis Brown koffie verromers is net so gesond soos melk.	Waar
	Onwaar
	Weet nie

Afdeling 3

Maak asb 'n X in die blokkie wat u opinie die beste beskryf.

1. 'n Kind wat nie oorgewig is nie, kan lekkers en sjoklolate eet sonder dat dit sy gesondheid nadelig sal beïnvloed.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

2. My eetgewoontes het 'n direkte invloed op my kind(ers) se eetgewoontes.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
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3. Dit is beter om 'n pakkie aartappelskyfies (chips) te eet as om glad niks te eet nie.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

4. As my kind aan skoolsport deelneem is ek minder besorg oor sy/haar dieet.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

5. Gesonde etes is duurder om voor te berei as ongesonder maaltydopsies.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

6. Dit is die verantwoordelikheid van die skool om ons kinders oor gesonde eetgewoontes te leer.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

7. Die gesondheidsbooskappe wat ek kry deur die televisie, radio en tydskrifte beïnvloed my voedselkeuses.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

Afdeling 4

Maak asb 'n X in blokkie wat u opinie die beste beskryf.

1. Ek lees voedsel-etikette om my te help om gesonde keuses te maak tydens voedselaankope.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

2. Ek sal eerder 'n lae vet produk koop as die etiket dit aandui.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

3. Ek gee vir my kind/kinders snoepie geld.

Nee, nooit	Ja, maar selde	Ja 1 – 2 x per week	Ja, elke dag
------------	----------------	---------------------	--------------

4. Hoeveel snoepie geld gee u vir u kind per week? R_____

5. Ek gebruik gereeld olie om my kos gaar te maak.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

6. Ek voeg suiker en botter by my groente om dit meer smaaklik vir my kinders te maak.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

7. Ek kies/koop voedsel wat ek weet my kinders sal eet, al is dit nie die gesondste opsie nie.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

8. Ek koop eerder vrugte as daar afslag op die prys is.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

9. Ek koop nie juis groente nie, want my kinders eet dit nie.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

10. As die verpakking en prentjies op 'n produk mooi lyk sal ek liever daardie produk kies.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

11. Ek pak 'n kosblik vir skool en gee snoepiegeld .

Nee, nooit	Ja, soms	Ja, 1-2 x per week	Ja , elke dag
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12. Ek beloon/bederf my kinders met lekkergoed.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

13. Ek koop gaskoeldrank bv, Coke en Fanta, want dit is goedkoper as vrugtesap.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

14. Ons eet ten minste een keer per week uit.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

15. Ek koop wegneemetes:

Nooit	Een maal per week	Twee keer per week	Drie of meer keer per week
-------	-------------------	--------------------	----------------------------

16. Ek weet nie eintlik hoe om gesonde maaltye voor te berei nie.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

17. Watter bronne gebruik u die meeste om voedingsinligting te verkry?

	Merk met 'n X
Tydskrifte	
Vriende	

Kinders	
Televisie en radio	
Dokters en mediese personeel	
Ander, spesifiseer asb.	

18. Watter een van die volgende drankies sal u vir u kind kies?

Coke, Sparletta, 7-up, Bashews	
Suiker vry koeldrank bv. Tab, Diet Coke, Diet Sprite	
Vrugtesap bv. Ceres, Liquifruit, Qauli Juice	
Gebottelde water (gewoon)	
Gegeurde water	
Oros, Halls	
Tropicana, Fiesta	

19. Waarom verkies u die drankies soos hierbo gekies? _____

Afdeling 5

Kies asb EEN antwoord per vraag en merk met 'n X.

1. Oorgewig kinders het 'n groter kans om oorgewig volwassenes te word.	Waar
	Onwaar
	Weet nie
2. Oorgewig kinders het 'n groter kans om diabetes mellitus (suikersiekte) te ontwikkel.	Waar
	Onwaar
	Weet nie
3. Aktiewe kinders het 'n kleiner kans om oorgewig te word.	Waar
	Onwaar
	Weet nie

Afdeling 6

Kies asb. die mees geskikte antwoord vir die onderstaande vrae. (u kan meer as een antwoord kies).

1. Die grootste faktor wat my voedselaankope beïnvloed is:

	Merk met 'n X
Te min tyd	
Prys	
Smaak	
Voedingswaarde	
Invloed van my kinders	

2. Ek koop wegneemetes vir my kinders omdat:

	Merk met 'n X
Ek nie tyd het om te kook nie	
Om hulle te bederf	
Die kos moet vinnig klaar wees as almal by die huis kom	
My idees raak op	
Om myself te bederf.	

3. Ek weet nie hoe om gesonde te kos voor te berei nie.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

4. Ek weet wat gesond eet behels, maar die res van my familie het ander voorkeure.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

5. Ek sou meer wegneemetes gekoop het indien daar meer kitskos restaurante naby my huis was.

Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
--------------------	---------------	-----------	------------------------

6. Dit is vir my kinders moeilik om aan skoolsport aktiwiteite deel te neem, omdat ek werk.

Nie van toepassing, ek werk nie	Stem glad nie saam	Stem nie saam	Stem saam	Stem ten sterkste saam
---------------------------------	--------------------	---------------	-----------	------------------------

7. Wat verstaan u onder die term gesond eet?

Baie dankie.

U deelname word waardeer.

Gelukkige trekking

SP1, SP2, SM1, SM4,
SM5

Slegs vir kantoor gebruik

Dui asb u bereidwilligheid aan om deel te neem aan 'n groepbespreking oor voedselaankope deur die onderstaande afskeurstrokie in te vul. Deur dit te doen sal u in aanmerking kom vir 'n gelukkige prystrekking ter waarde van **R200.**

Maak 'n kruisie in die toepaslike blokkie asb.

Ek is 'n werkende ma Ek werk nie:.....
(voltyds/deeltyds):.....

Graad waarin kind/kinders tans is: (Merk met 'n X)

Graad 1:

Graad 2:

Graad3:

Graad 4:

Graad 5:

Graad 6:

Graad 7:

Kontaknommer (om bespreking te reël en vir gelukkige prystrekking doeleindes).

Tel: _____

ADDENDUM E: SELF-ADMINISTERED QUESTIONNAIRE: CODED

Research Questionnaire

An investigation of the factors influencing the food choices of mothers of primary school children in the Metro North Education District of the Western Cape Province, South Africa.

Dear Parent

I am a Master of Nutrition student at Stellenbosch University. I will be conducting my research at the primary school your child/children attend.

By completing this questionnaire you agree to participate in the study and give me permission to use this information as part of my study results. Your participation will make a valuable contribution to the results of this study.

This is a survey and not a test. As a result there is no right or wrong answers.

All information will be treated as confidential and anonymous.

NB: Please sign the consent form at the back of the survey before you start (marked with sticky note)

Please read the instructions before completing the questions.

1. Please answer all the questions as honestly as possible.
2. Mark all relevant boxes (☐) with an X.
3. The questionnaire should be completed only by the biological (birth) mother or primary caregiver of the child who does most of the food purchases.

Section 1

Demographic information

1. What is your relationship to the child	<input type="checkbox"/> Birth mother	BM
	<input type="checkbox"/> Step mother	SM
	<input type="checkbox"/> Foster mother	FM
	<input type="checkbox"/> Other: please specify	Other
2. How old are you?years	

3. What is your total monthly household income (combined)?	<input type="checkbox"/> Less than R1000	1
	<input type="checkbox"/> R1001- R2500	2
	<input type="checkbox"/> R2501 –R3500	3
	<input type="checkbox"/> R3500 – R5500	4
	<input type="checkbox"/> R5501 – R9000	5
	<input type="checkbox"/> R9001 – R12 500	6
	<input type="checkbox"/> R12 501 – R16 500	7
	<input type="checkbox"/> More than R16 500	8
4.Indicate your employment status	<input type="checkbox"/> Working full time (40 hours per week)	4
	<input type="checkbox"/> Working part time (25 hours per week)	3
	<input type="checkbox"/> Work less than ten hours per week	2
	<input type="checkbox"/> Not working currently	1
5.Indicate your highest level of education	<input type="checkbox"/> Grade 7 or lower	1
	<input type="checkbox"/> Grade 8 -11	2
	<input type="checkbox"/> Grade 12 (Matric)	3
	<input type="checkbox"/> Higher degree/diploma	4
6.How many children do you have	<input type="checkbox"/> One	1
	<input type="checkbox"/> Two	2
	<input type="checkbox"/> Three	3
	<input type="checkbox"/> Four	4
	<input type="checkbox"/> Five	5
7.Please mark the age(s) of your child/children that are still in school	<input type="checkbox"/> 6	1
	<input type="checkbox"/> 7	1
	<input type="checkbox"/> 8	1
	<input type="checkbox"/> 9	1
	<input type="checkbox"/> 10	1
	<input type="checkbox"/> 11	1

	<input type="checkbox"/> 12	1
	<input type="checkbox"/> 13	1
	<input type="checkbox"/> 14	1
	<input type="checkbox"/> 15	1
8. What is your race?	<input type="checkbox"/> Black	B
	<input type="checkbox"/> Colored	C
	<input type="checkbox"/> Indian	I
	<input type="checkbox"/> White	W
	<input type="checkbox"/> Other: specify	Other
9. After school my children:	<input type="checkbox"/>Stay at home	SH
	<input type="checkbox"/>Aftercare	SA
	<input type="checkbox"/>Other, specify:	Other

Section2

Knowledge questions

Please choose ONE answer per question. Mark your answer with and X

1. White bread is healthier when toasted.	True	1
	False	0
	Do not know	
2. Growing children need a lot of sugar to have enough energy.	True	1
	False	0
	Do not know	
3. Children need to eat fruit and vegetables daily.	True	1
	False	0
	Do not know	
4. If children eat a healthy diet there is no need for them to do exercise.	True	1
	False	0
	Do not know	

5. A glass of fruit juice is healthier than one fresh fruit.	True	1
	False	0
	Do not know	
6. Fruit and vegetables are fat – free food items.	True	1
	False	0
	Do not know	
7.Red meat is a good source of Iron	True	1
	False	0
	Do not know	
8.Baked beans are a good source of protein	True	1
	False	0
	Do not know	
9. Fried eggs (in oil) are healthier than boiled eggs (in shell).	True	1
	False	0
	Do not know	
10. Low fat products contain less than 3g fat per 100g.	True	1
	False	0
	Do not know	
11.Gas cool drinks such as Coke, Fanta and Cream Soda are healthy drinks	True	1
	False	0
	Do not know	
12. Brown sugar and honey are healthier than white sugar.	True	1
	False	0
	Do not know	
13. Cremora /Ellis Brown coffee creamers are just as healthy as milk.	True	1
	False	0
	Do not know	

Section3**Attitude questions**

Please make an X in the block that reflects your opinion most on the statements given.

1. A child that is not overweight can eat sweets and chocolates daily without developing health problems.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

2. My eating habits have a direct influence on my child's eating habits.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

3. It is better to eat a packet of chips (crisps) than to eat nothing at all.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

4. If my child partakes in school sport I am less concerned about his/her diet.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

5. Preparing healthy meals is more expensive than healthier meal options.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

6. It is the responsibility of the school to teach our children about healthy eating habits.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

7. The messages through television, radio and magazines influence my food choices.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

Section 4

Question relating to practices

Please make an X in the block that reflects your opinion most on the statements given.

1. I read food labels to help me choose the healthiest option before I buy a product.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

2. I will rather choose a product if it is labeled low fat.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

3. I give my child/children tuck-shop money.

No, never	Yes, but only on rare occasions	Yes, only 1- 2x per week	Yes, every day
0	1	2	3

4. How much tuck-shop money do you give your child per week? : R_____

5. I use oil regularly when I prepare.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

6. I add sugar and margarine to my vegetables to make it tastier for my children.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

7. I choose/buy the food I know my children will eat even if it is not the healthiest choice.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

0	1	2	3
----------	----------	----------	----------

8. I am more likely to buy fruit if it is on a special discount.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

9. I don't buy a lot of vegetables because my child (ren) won't eat them.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

10. If the package and picture of a product looks pretty I will rather choose that product.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

11. I pack a lunchbox and give my child tuck-shop money.

No, never	Yes, but only once in a while	Yes, 1 – 2 x per week	Yes ,every day
0	1	2	3

12. I reward/treat my children with sweets/chocolates.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

13. I buy Coke, Fanta and other gas cool drinks because it is cheaper than fruit juice.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

14. We eat away from home at least once a week.

Strongly disagree	Disagree	Agree	Strongly agree
-------------------	----------	-------	----------------

0	1	2	3
----------	----------	----------	----------

15. I buy take- aways:

Never	Once a week	Twice a week	More than three time a week
0	1	2	3

16. I don't really know how to prepare healthy meals.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

17. Where do you look for information about then goodness/nutritional information on food?

	Mark with an X (can tick more than one)	
Magazines		1
Friends		1
Children		1
Television and radio		1
Doctors and health professionals		1
Other, please specify		1

18. Which of the following drinks would you choose for your child?

Sugary and fuzzy drinks cool drinks (e.g. Coke, Sparletta, 7-up, Bashews)		1
Sugar free drinks or diet drinks e.g. Tab, Diet Coke, Diet Sprite		1
Fruit juice, Ceres, Liqui fruit, Quali Juice		1
Bottled water (plain)		1
Bottled water (flavoured)		1
Oros, Halls		1
Tropicana, Fiesta		1

19. Why do you buy the drinks as chosen above?

Section 5

Question relating to knowledge on childhood obesity

Please choose ONE answer to each question. Mark your answer with and X

1. Overweight children have a greater chance of becoming overweight adults.	True	1
	False	0
	Do not know	
2. Overweight children are at greater risks of developing diabetes mellitus (sugar illness)	True	1
	False	0
	Do not know	
3. Active children will have a smaller chance of becoming overweight.	True	1
	False	0
	Do not know	

Section 6**Barriers**

Please choose the most suitable answers for the questions below. (You can choose more than one answer). Mark the appropriate block with an X.

1. The biggest factor influencing my choice of food for my children is:

	Mark with an X (can tick more than one)	
Lack of time		1
Price/Cost		1
Taste		1
Healthiness/Nutritional value		1
Preference/Influence from my children		1

2. I buy take-aways for my family because:

	Mark with an X	1
I don't have time to cook		1
To treat them		1
They are just too hungry after a long day and I have to get food on the table quickly.		1
I don't know what else to prepare		1
To treat myself		1

3. I don't know how to prepare healthy meals.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

4. I know what healthy food is, but the rest of my family has different taste preferences.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

5. If there were more fast food shops close to my home, I would by more take-away food.

Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3

6. It is difficult for my children to participate in school sport activities because I work.

Not applicable	Strongly disagree	Disagree	Agree	Strongly agree
0	1	2	3	4

7. What do you think the term “healthy eating” mean?(Please describe in your own words)

Thank you.

Your participation is appreciated.

ADDENDUM F: FOCUS GROUP DISCUSSION GUIDE

Focus group discussion guide

Introduction

- Informed written consent from the participants will be obtained by the researchers before the discussion starts.
- Greet all participants and introduce the researcher/facilitator (name) and observers (name).
- The observers (name) will be taking notes during our discussion to facilitate analysis of the content of our discussion. A tape recorder will be used to accurately record responses.
- Thank you for agreeing to take part in this focus group discussion.
- The purpose of this discussion is to get more insight into the barriers when mothers make food choices.
- You will be asked a series of questions of which there are no right or wrong answers for.
- Please feel free to participate.
- The information we gather will help to get more insight into the complex process of food choice and to formulate policies to support mothers when making food choices.
- As we will be discussing a few concepts it is very important that only one person will speak at a time in order to document responses accurately.
- If the discussion goes far of the topic, I will interrupt and move on to the following question.
- You are ensured that all responses are confidential and will be used for research purposes only.
- The discussion will be voice recorded but no reference to names will be made in the research report or any subsequent publications of the results.
- The discussion will not take longer than 90 minutes.
- Does everyone understand?
- Do you have any questions?
- Before we start lets tell each other without saying any names how many children we have and how old they are.

Focus group discussion starts

We will now start with the discussion. We will start recording now.

Discussion topics: Employed mothers/Unemployed mothers

Rephrase question that does not lead to discussion or is not understood.

1. Mothers who know more about healthy eating will make better food choices for their families. How do you feel about this statement?
2. Do you think that the fact that you are working/not working influence your food choice?
3. Why do you think we are seeing more overweight children?
4. How do you feel/ what do you think when you see an overweight child?
5. Do you think you would have prepared and bought different food if you stayed at home?
6. Do you feel like a better mother if everyone in your house is happy about the food that you made and what is available in the home?
7. Tell me more about how you decide to buy certain items when doing shopping.(List, price, specials, kids preference)
8. Why do you think mothers sometimes choose to buy more unhealthy food? What is the biggest challenge if you want to buy healthy food?
9. Probe: access, availability, time cost, Childs preference.....
10. What do you think about fast food? How often should children eat take-aways/fast food? Do you think is ok to eat it?
11. How do you feel about school tuck-shops? Is it helpful to know that there is a tuck-shop at the school? Do you know what items are sold in the tuck-shops? How do you feel about the food that is sold in the tuck-shop?
12. Are there anything else you want to share with us regarding food choice and purchases?
13. So in summary you are saying.....

Prompts to all the questions include the following phrases:

“Why do you feel that way?”

“Tell me more...”

“In what way...?”

“I don’t understand what you are saying”

“Tell me more about your thoughts on”

“Would you explain further?”

“Can you give me an example?”

Discussion topics: Unemployed mothers

Rephrase question that does not lead to discussion or is not understood.

1. Mothers who know more about healthy eating will make better food choices. How do you feel about this statement?
2. Do you feel that employment status influence food choice?
3. Why do you think are we seeing more overweight children?
4. Do you think you would have prepared and purchased food differently if you worked?
5. Do you feel like a better mother if everyone in the household is happy about the food prepared and available in the home?
6. Tell me more about how you decide to buy certain items when doing shopping.
7. How do you feel about the large amount of fast food outlets that are available nowadays?
8. How do you feel about school tuck-shops?
9. Are there anything else you want to share with us regarding food choice and purchases?
10. So in summary you are saying.....

Prompts to all the questions include the following phrases:

“Why do you feel that way?”

“Tell me more...”

“In what way...?”

“I don’t understand what you are saying”

“Tell me more about your thoughts on”

“Would you explain further?”

“Can you give me an example?”

Closing

Thank you for joining the focus group discussion. Your input is valuable to us. Do you have any questions to ask?

Enjoy the rest of your day

Observers’ guide to focus groups

The following should be captured/documented per question

- Dynamics of the group e.g. excited versus lack of interest
- Are some participants more outspoken and others not participating?
- Agreement within the group or do opinions differ.
- Do some people dominate the conversation and are other very quiet.
- Non –verbal cues e.g. nodding, shaking head, facial expressions.

ADDENDUM G: ASSESSMENT OF THE QUESTIONNAIRE

Assessment of the Questionnaire

Please can you fill in the following questions with regard to the questionnaire. Your feedback will assist in improving the questionnaire. Thank you!

1. The length of the questionnaire

Too long

Acceptable

2. How long did it take you to complete the questionnaire?

—

3. Did you understand the instructions given to complete the questionnaire?

Yes

No

4. The size of the letters was easy to read and big enough.

Yes

No

5. The question was clear and easy to understand.

Yes

No

If not, which questions was unclear?

—

6. The process of receiving and sending back the questionnaire was effective.

Yes

No

7. The language used was clear and easy to understand.

Yes

No

Any other comments:

—

—

ADDENDUM H: INFORMED CONSENT FORM: QUESTIONNAIRES

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM Self-administered Questionnaires

TITLE OF THE RESEARCH PROJECT:

An investigation of the food choices made by mothers of primary school children of the Metro-North Education District of the Western Cape Province, South Africa.

REFERENCE NUMBER:

PRINCIPAL INVESTIGATOR: Yolande Smit

ADDRESS:

40 Doringboom Street
De Oude Spruit
Brackenfell
7560

CONTACT NUMBER:

(021) 938 9597

You are invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please feel free to contact the researcher if you have any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

The study aim to understand the food choices mothers make and the reasons for making those choices. These results are important because of the increases in the number of overweight children in South Africa. Three primary schools will take part in the study. A total of 1200 questionnaires will be sent out to mothers of primary school children from these schools. Your child will bring home the questionnaire that has to be completed by the mother, stepmother or foster mother of the child, who is responsible for purchasing the food in the household. Questions about your knowledge, practices and attitude and general questions about yourself will be asked. After completion of the questionnaire you will send it back to the school.

Why have you been invited to participate?

You have been randomly selected to take part in the study. Because you are a mother and most likely to be the primary food purchaser your input will be invaluable to the researcher.

What will your responsibilities be?

The only responsibility you have is to complete the questionnaire and send it back to the school if you decide to participate in the study.

Will you benefit from taking part in this research?

There is no direct benefit to you. The results of the study could possibly help with the development of future education programs and policies to benefit you and your children.

Are there any risks involved in your taking part in this research?

There are no risks involved with the participation of the study. All questionnaires will be treated as confidential and your participation is anonymous.

Who will have access to the information on the questionnaire?

The information obtained from the anonymous (no name required) questionnaires will be treated as confidential and analyzed for research purposes. Only the research team will have access to the information on the questionnaires. Should you be willing to supply your contact number it will only be used for the purpose of organising the focus groups and for the lucky draw.

Will you be paid to take part in this study and are there any costs involved?

No, you will not be paid to take part in the study. However, there will also be no costs involved for you should you decide to take part in the study. All the participants who give their contact number on the provided tear-off slip at the end of the questionnaire will come into account for a lucky draw to the value of R200.

Is there anything else that you should know or do?

You can contact Mrs Yolande Smit at 021- 938 9597 if you have any further queries or encounter any problems.

You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researcher.

You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I agree to take part in a research study entitled: An investigation of the food choices made by mothers of primary school children of the Metro- North Education District of the Western Cape Province, South Africa.

I declare that:

- I have read this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (*place*) On (*date*) 2014.

Signature of participant

Signature of witness

Declaration by investigator

I Yolande Smit declare that:

The participants had time to ask questions telephonically and I took adequate time to answer them encouraged her to ask questions and took adequate time to answer them.

I am satisfied that she adequately understands all aspects of the research, as discussed above
I did/did not use an interpreter

Signed at (*place*) on (*date*) 2014.

Signature of investigator

Signature of witness

Declaration by interpreter

I (*name*) declare that:

- I assisted the investigator (*name*) to explain the information in this document to (*name of participant*) in the language medium of choice English, Afrikaans or Xhosa.
- We encouraged him/her to ask questions and took adequate time to answer them.
- I conveyed a factually correct version of what was related to me.
- I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (*place*) on (*date*)

Signature of interpreter

Signature of witness

ADDENDUM I: INFORMED CONSENT FORM: FOCUS GROUP DISCUSSIONS

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM Focus group discussions

TITLE OF THE RESEARCH PROJECT:

An investigation of the food choices made by mothers of primary school children of the Metro-North Education District of the Western Cape Province, South Africa.

REFERENCE NUMBER:

PRINCIPAL INVESTIGATOR: Yolande Smit

ADDRESS:

40 Doringboom Street
De Oude Spruit
Brackenfell
7560

CONTACT NUMBER:

(021) 938 9597

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the researcher questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is entirely voluntary and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the Health Research Ethics Committee at Stellenbosch University and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

The study aim to understand the food choices mothers make and the reasons for making those choices. These results are important because of the increase in the number of overweight children in South Africa. The researchers would like you to take part in a focus group discussion with other mothers from your child's primary school regarding food choices you make and what the barriers are when doing food purchases. There will be approximately seven mothers in each discussion group and it will be conducted at your child's primary school. The researcher will ask you some questions on this topic and document your responses. Your identity will remain anonymous and responses will be tape recorded. This study is conducted in three primary schools and a total of six discussion groups will be held, two per school.

Why have you been invited to participate?

You have been randomly selected to take part in the study. Because you are a mother and most likely the primary food purchaser your input will be invaluable to the researchers

What will your responsibilities be?

If you give permission to take part in the focus group discussion, your only responsibility will be to set aside some time to take part in the discussion. The focus group discussion will take approximately 60 - 90 minutes. The focus group discussion will be held at the school or a venue suitable for all seven participants. You will be expected to travel to the venue for the focus group discussion and back. Your permission is required as the focus group discussion needs to be voice recorded. The recording will be transcribed for the purpose of further analysis of information obtained from all participants.

Will you benefit from taking part in this research?

There is no direct benefit to you. The results of the study could possibly help with the development of future education programs and policies to benefit you and your children.

Are there any risks involved in your taking part in this research?

There are no risks involved with the participation of the study. All information obtained from the focus group discussion will be treated as confidential. The voice recordings will be password protected and destroyed after transcription. Only the research team will have access to the recording and the transcribed text.

Who will have access to the information obtained from the focus group discussion?

The information obtained during the discussion will be treated as confidential. Your name will not be recorded at any stage to ensure anonymity. Only the research team will have access to the discussion notes and voice recordings.

Will you be paid to take part in this study and are there any costs involved?

No, you will not be paid to take part in the study. You will be expected to travel to the venue of choice and back on your own cost. There is no other cost involved. All the participants who give their contact number on the provided tear-off slip at the end of the questionnaire will come into account for a lucky draw to the value of R200.

Is there anything else that you should know or do?

You can contact Mrs Yolande Smit at 079 520 5066 if you have any further queries or encounter any problems.

You can contact the Health Research Ethics Committee at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by the researcher.

You will receive a copy of this information and consent form for your own records.

Declaration by participant

By signing below, I agree to take part in a research study entitled: An investigation of the food choices made by mothers of primary school children of the Metro- North Education District of the Western Province. I give permission to have the discussion voice recorded.

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is voluntary and I have not been pressurised to take part.

- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

Signed at (*place*) on (*date*) 2014.

Signature of participant

Signature of witness

Informed consent for taping of the interview

I understand that the focus group discussion will be voice recorded to enable the researcher to accurately transcribe the discussion. It has been explained to me that the recordings and all electronic documents will be stored safely and destroyed after six months of completion of the research. I was given the opportunity to ask questions and all queries were explained to my satisfaction. I have been given a copy of the consent form.

Signed at (*place*) on (*date*) 2014.

Signature of participant

Signature of witness

Declaration by investigator

I Yolande Smit declare that:

- I explained the information in this document to
- The participants had time to ask questions and I took adequate time to answer them.
- I am satisfied that he/she adequately understands all aspects of the research, as discussed above
- I did/did not use an interpreter. (*If an interpreter is used then the interpreter must sign the declaration below.*)

Signed at (*place*) on (*date*) 2013.

Signature of investigator

Signature of witness

Declaration by interpreter

I (*name*) declare that:

- I assisted the investigator (*name*) to explain the information in this document to (*name of participant*) in the language medium of choice English, Afrikaans or Xhosa.
- We encouraged him/her to ask questions and took adequate time to answer them.
- I conveyed a factually correct version of what was related to me.
- I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (*place*) on (*date*) 2013.

Signature of interpreter

Signature of witness

ADDENDUM J: FOKUSGROEP BESPREKINGSGIDS

Fokusgroep besprekingsgids

Inleiding

- Skriftelike toestemming om deel te neem aan die studie sal van elke deelnemer verkry word.
- Groet al die deelnemers en stel die navorser/fasiliteerder (naam) en observeerder (naam) voor.
- Die observeerder sal notas neem tydens die bespreking om sodoende analise van die inhoud van die bespreking te fasiliteer.
- Dankie dat u deelneem aan die fokusgroep bespreking.
- Die doel van die bespreking is om meer insig te verkry in die struikelblokke wat moeders teëkom as hul voedselaankope doen.
- Daar sal 'n paar vrae aan u gestel word, waarvan daar nie regte of verkeerde antwoorde is nie.
- Neem asb. vrylik deel aan die bespreking.
- Die inligting wat ons kry sal help om meer insig te verkry in die komplekse prosesse van voedselkeuse en om beleide te formuleer wat moeders kan ondersteun met voedselkeuses.
- Dit is belangrik dat net een persoon op 'n slag praat om sodoende antwoorde akkuraat gedokumenteer kan word.
- Indien daar afgedwaal word van die bespreking, sal ek u onderbreek en aanbeweeg na die volgende vraag.
- Alle antwoorde is konfidensiëel en sal slegs vir navorsingsdoeleindes gebruik word.
- Die bespreking sal bandopgeneem word, maar daar sal na geen name verwys word in die navorsingsverslag en daaropvolgende publikasies nie.
- Die bespreking sal nie langer as 'n 90 minute duur nie.
- Verstaan almal en is daar enige vrae?

Voordat ons begin kom ons sê vir mekaar hoeveel kinders jy het en hoe oud hulle is, sonder om jou naam te sê.

Fokusgroepbespreking begin

Ons gaan nou begin met die bespreking en om die bespreking op te neem.

Besprekingsonderwerpe: Werkende moeders/Nie werkende moeders

Herfraseer vrae wat nie waarde toevoeg tot die bespreking nie en wat nie verstaan word nie.

1. Moeders wat meer weet van gesonde eetgewoontes sal beter voedselkeuses maak vir hul familie? Hoe voel u oor hierdie stelling?
2. Voel u dat die feit dat u werk/**nie werk** u voedselkeuses beïnvloed?
3. Waarom dink usien ons meer oorgewig kinders vandag?
4. Wat dink u as u 'n kind sien wat baie oorgewig is.
5. Sou die items wat u koop en die manier waarop u dit gaarmaak verskil het as u nie gewerk het nie?
6. Voel u soos 'n beter ma as almal in die huis hou van die maaltye wat u voorberei en wat beskikbaar is by die huis?
7. Vertel my meer oor hoe u besluit watter voedsel om te koop. (lysie, prys, spesiale aanbiedings, verpakking, kinders se keuse)
8. Hoe voel u oor kitskos en hoe gereeld dink u moet kinders kitskos eet? Wanneer sou ukitskos/ wegneemetes koop?
9. Hoe voel u oor skool snoepies? Help dit u soms dat daar wel 'n snoepie is. Weet u wat hul in die snoepie verkoop? Hoe voel u oor die tipe kos wat daar verkoop word?
10. Is daar nog iets wat u met ons wil deel aangaande voedselaankope?
11. Om op te som sê u dat

Vir alle vrae kan die volgende aansporingsfrases gebruik word:

“Hoekom voel u so”

“Vertel my meer...”

“In watter manier..?”

“Ek verstaan nie wat u sê nie”

“Vertel my meer van u gedagtes oor”

“Kan u verder verduidelik?”

“Kan u vir my ‘n voorbeeld gee?”

Afsluiting

Dankie dat u deelgeneem het aan die fokusgroepbepreking. U insette is baie waardevol vir ons. Het u enige vrae om te vra?

Gids vir observeerder

- Die volgende moet gedokumenteer word vir elke vraag:
- Dinamiek van die groep bv. opgewonde of toon geen belangstelling nie.
- Is party deelnemers meer uitgespoken en ander ondeelnemend?
- Stem deelnemers saam of is daar baie verskillende opinies.
- Nie –verbale gebare bv. kop skud, gesigsuitdrukkinge

ADDENDUM K: EVALUERING VAN DIE VRAELYS

Evaluering van die vraelys

Vul asb die volgende vrae rakende die vraelys in. U terugvoer sal bydra tot die verbetering van die vraelys. Baie dankie!

1. Die lengte van die vraelys

Te lank

Aanvaarbaar

2. Hoe lank het dit geneem om die vraelys te voltooi? _____

3. Het u die instruksies op die vraelys verstaan?

Ja

Nee

4. Die grootte van die letters was groot genoeg.

Ja

Nee

5. Die vrae was duidelik en maklik om te verstaan.

Ja

Nee

Indien nie, watter vrae was onduidelik?

6. Die ontvang en terugstuur proses was effektief

Ja

Nee

7. Die taalgebruik was maklik en duidelik verstaanbaar.

Ja

Nee

Enige ander kommentaar:

ADDENDUM L: DEELNEMERS TOESTEMMINGSVORM: VRAELYTE

Deelnemers inligting en toestemmingsvorm Vraelyste

TITEL VAN DIE NAVORSINGSPROJEK:

'n Ondersoek na die faktore wat die voedselkeuses van moeders van laerskoolkinders van die Metro-Noord Onderwysdistrik van die Wes-Kaap Provinsie, Suid-Afrika beïnvloed.

HOOF NAVORSER: Yolande Smit

ADRES:

Doringboomstraat 40
De Oude Spruit
Brackenfell
7560

KONTAK BESONDERHEDE:

(021) 938 9597

U word uitgenooi om deel te neem aan 'n navorsingsprojek. Neem asb u tyd on hierdie inligtingstuk te bestudeer, wat die detail van die projek beskryf. Voel asb. vry om die navorser te kontak indien daar enige onduidelikheid rondom die studie of dele daarvan is wat u nie verstaan nie. U deelname is vrywillig en u mag besluit om nie aan die studie deel te neem nie. Indien u besluit om nie deel te neem nie, sal die keuse u op geen manier benadeel nie. U mag ook op enige tydstip tydens die studie onttrek al het u aanvanklik toegestem tot die studie.

Hierdie navorsingsprojek is deur die Gesondheidsnavorsingsetiekkomitee (GNEK) van die Universiteit Stellenbosch goedgekeur en sal uitgevoer word volgens die etiese riglyne en beginsels van die Internasionale Verklaring van Helsinki en die Etiese Riglyne vir Navorsing van die Mediese Navorsingsraad (MNR).

Wat behels hierdie navorsingsprojek?

Die doel van die studie is om die voedselkeuses wat moeders maak en die redes daaragter beter te verstaan. Hierdie resultate is belangrik teen die agtergrond van die toenemende getal oorgewig kinders in Suid-Afrika. Drie laerskole sal deelneem aan die studie. 'n Totaal van 1200 vraelyste sal uitgestuur word na moeders van kinders in die skole. U kind sal 'n vraelys huis toe bring wat asb voltooi moet word deur die moeder, stief- of pleegmoeder. Kennis, houding en praktyk vrae sowel as algemene vrae oor uself sal gevra word. Na voltooiing van die vraelys moet u dit terugstuur na die skool.

Waarom is u genooi om deel te neem?

U is lukraak gekies om deel te neem aan die studie. U insette is baie waardevol aangesien u 'n moeder is en waarskynlik die primêre voedselaankoper is.

Het ek enige verantwoordelikheid?

Die enigste verantwoordelikheid is dat u die vraelys moet voltooi en terugstuur skool toe sou u besluit om deel te neem.

Sal u enige voordeel trek uit die navorsing?

Daar is geen direkte voordeel vir u nie. Die resultate van die studie kan moontlik van waarde wees vir toekomstige opleidingsprogramme en beleide waarby u kinders baat kan vind.

Is daar enige risiko's verbonde aan die studie?

Daar is geen risiko verbonde aan die studie nie. Alle vraelyste sal as konfidensieel hanteer word en u deelname is anoniem.

Wie sal toegang hê tot die inligting van die vraelyste?

Die inligting op die vraelys word as anoniem (geen naam word benodig) hanteer en sal vir navorsingsdoeleindes geanaliseer word. Slegs die navorsingsspan sal toegang hê tot die informasie op die vraelys. Sou u bereid wees om u kontak besonderhede te gee, sal dit slegs aangewend word vir die reël van die fokusgroepbesprekings en gelukkige trekking doeleindes.

Word ek betaal om aan die studie deel te neem en is daar enige onkoste aan verbonde?

Nee, u word nie betaal om aan die studie deel te neem nie. Daar sal ook geen onkoste aan verbonde wees nie. Alle deelnemers wat hul kontak besonderhede gee op die afskeurstrokie aan die einde van die vraelys sal in aanmerking kom vir 'n gelukkige trekking ter waarde van R200.

Is daar enige ander inligting waarvan u moet kennis dra?

U kan mev. Yolande Smit kontak by 021 938 9597 indien u enige verdere vrae of probleme het.

U kan die Gesondheidsnavorsingsetiekkomitee (GNEK) skakel by 021-938 9207 indien u enige verdere navrae het wat nie deur die navorser verduidelik is nie. U sal 'n afskrif van hierdie dokument ontvang vir u eie rekords.

Verklaring deur die deelnemer

Met die ondertekening van hierdie dokument onderneem ek,om deel te neem aan 'n navorsingsprojek getiteld: 'n Onderzoek na die faktore wat die voedselkeuses van moeders van laerskoolkinders van die Metro-Noord Onderwysdistrik van die Wes-Kaap Provinsie, Suid-Afrika beïnvloed.

Ek verklaar dat:

- Ek hierdie inligtings- en toestemmingsvorm gelees het of aan my laat voorlees het en dat dit in 'n taal geskryf is waarin ek vaardig en gemaklik mee is.
- Ek geleentheid gehad het om vrae te stel en dat al my vrae bevredigend beantwoord is.
- Ek verstaan dat deelname aan hierdie navorsingsprojek **vrywillig** is en dat daar geen druk op my geplaas is om deel te neem nie.
- Ek te eniger tyd aan die navorsingsprojek mag onttrek en dat ek nie op enige wyse daardeur benadeel sal word nie.
- Ek gevra mag word om van die navorsingsprojek te onttrek voordat dit afgehandel is indien die studiedokter of navorser van oordeel is dat dit in my beste belang is, of indien ek nie die ooreengekome navorsingsplan volg nie.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van deelnemer
Verklaring deur die navorser

.....
Handtekening van getuie

Ek Yolande Smit verklaar dat:

Die deelnemer tyd gehad het om vrae telefonies te rig en ek genoegsame tyd spandeer het om die vrae te beantwoord. Ek is tevrede dat die deelnemer alle aspekte van die navorsing verstaan soos aan haar verduidelik.

- Ek het/het nie 'n tolk gebruik nie.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van navorser

.....
Handtekening van getuie

Verklaring deur die tolk

Ek (naam) verklaar dat:

- Ek die navorser (naam) bygestaan het om die inligting in hierdie dokument in die taal van keuse Engels/Afrikaans of Xhosa aan (naam van deelnemer) te verduidelik.
- Ons hom/haar aangemoedig het om vrae te vra en voldoende tyd gebruik het om dit te beantwoord.
- Ek 'n feitelik korrekte weergawe oorgedra van wat aan my vertel is.
- Ek tevrede is dat die deelnemer die inhoud van hierdie dokument ten volle verstaan en dat al sy/haar vrae bevredigend beantwoord is.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van tolk

.....
Handtekening van getuie

ADDENDUM M: DEELNEMERSTOESTEMMINGSVORM: FOKUSGROEP BEPSREKING

Deelnemers inligting en toestemmingsvorm Fokusgroepbesprekings

TITEL VAN DIE NAVORSINGSPROJEK:

'n Onderzoek na die faktore wat die voedselkeuses van moeders van laerskoolkinders van die Metro-Noord Onderwysdistrik van die Wes-Kaap Provinsie, Suid-Afrika beïnvloed.

HOOF NAVORSER: Yolande Smit

ADRES:

Doringboomstraat 40
De Oude Spruit
Brackenfell
7560

KONTAK BESONDERHEDE:

(021) 938 9597

U word uitgenooi om deel te neem aan 'n navorsingsprojek. Neem asb u tyd om hierdie inligtingstuk te bestudeer, wat die detail van die projek beskryf. Voel asb. vry om die navorser re kontak indien daar enige onduidelikheid rondom die studie of dele daarvan is wat u nie verstaan nie. U deelname is vrywillig en u mag besluit om nie aan die studie deel te neem nie. Indien u besluit om nie deel te neem nie, sal die keuse u op geen manier benadeel nie. U mag ook op enige tydstip tydens die studie onttrek al het u aanvanklik toegestem tot die studie.

Hierdie navorsingsprojek is deur die Gesondheidsnavorsingsetiekkomitee (GNEK) van die Universiteit Stellenbosch goedgekeur en sal uitgevoer word volgens die etiese riglyne en beginsels van die Internasionale Verklaring van Helsinki en die Etiese Riglyne vir Navorsing van die Mediese Navorsingsraad (MNR).

Wat behels hierdie navorsingsprojek?

Die doel van die studie is om die voedselkeuses wat moeders maak en die redes daaragter beter te verstaan. Hierdie resultate is belangrik teen die agtergrond van toenemende getal oorgewig kinders in Suid-Afrika. Die navorser nooi u om deel te neem aan 'n fokusgroep bespreking saam met ander moeders van u kind se skool. Die bespreking sal handel oor die voedselkeuses wat moeders maak en die struikelblokke wat u ondervind met die maak van voedselkeuses. Daar sal ongeveer sewe moeders deelneem aan die besprekingsgroep en dit sal by u kind se skool plaasvind. Die navorser sal 'n paar vrae aan u stel rakende die onderwerp en u antwoorde sal gerekordeer word. Alle deelnemers sal anoniem bly en antwoorde sal bandopgeneem word. Hierdie studie word uitgevoer by drie skole en ses besprekings sal gehou word.

Waarom is u genooi om deel te neem aan die studie?

U is lukraak gekies om deel te neem aan die studie. U insette is baie waardevol aangesien u 'n moeder is en waarskynlik die primêre voedselaankoper is.

Het ek enige verantwoordelikheid?

Indien u toestemming verleen om deel te neem aan die fokusgroepbespreking sal u enigste verantwoordelikheid wees om 'n tydjie in te ruim vir die bespreking en op te daag by u kind se skool of geskikte plek soos ooreengekom deur al die deelnemers. Die bespreking sal ongeveer 60 – 90 minute duur. U sal heen en terug na die plek van bespreking moet reis. Die opname sal getranskribeer word vir navorsingsdoeleindes.

Sal u enige voordeel trek uit die navorsing?

Daar is geen direkte voordeel vir u nie. Die resultate van die studie kan moontlik van waarde wees vir toekomstige opleidingsprogramme en beleide waarby u kinders baat kan vind.

Is daar enige risiko's verbonde aan die studie?

Daar is geen risiko verbonde aan die studie nie. Alle inligting verkry van die fokusgroepbespreking sal as konfidentiële hanteer word. Bandopnames sal beskerm word deur 'n wagwoord en vernietig word na transkripsie.

Wie sal toegang hê tot die informasie?

Die inligting sal as konfidentiële hanteer word en u identiteit sal anoniem bly. Slegs die navorsingspan sal toegang hê tot die besprekingsnotas en bandopnames.

Word ek betaal om deel te neem aan die studie en is daar enige onkoste aan verbonde?

Nee, u word nie betaal om deel te neem aan die studie nie. Vervoer na en terug van die besprekingsplek is vir u eie onkoste. Indien u u kontakbesonderhede op die afskeurstrokie aan die einde van die vraelys aandui kom u in aanmerking vir 'n gelukkige trekking ter waarde van R200.

Is daar enige ander inligting waarvan u moet kennis dra?

U kan mev. Yolande Smit kontak by 079 520 5066 indien u enige verdere vrae of probleme het. U kan die Gesondheidsnavorsingsetiekkomitee (GNEK) skakel by 021-938 9207 indien u enige verdere navrae het wat nie deur die navorser verduidelik is nie. U sal 'n afskrif van hierdie dokument ontvang vir u eie rekords.

Verklaring deur die deelnemer

Met die ondertekening van hierdie dokument onderneem ek,.....om deel te neem aan 'n navorsingsprojek getiteld: 'n Onderzoek na die faktore wat die voedselkeuses van moeders van laerskoolkinders van die Metro-Noord Onderwysdistrik van die Wes-Kaap Provinsie, Suid-Afrika beïnvloed.

Ek verklaar dat:

- Ek hierdie inligtings- en toestemmingsvorm gelees het of aan my laat voorlees het en dat dit in 'n taal geskryf is waarin ek vaardig en gemaklik mee is.
- Ek geleentheid gehad het om vrae te stel en dat al my vrae bevredigend beantwoord is.
- Ek verstaan dat deelname aan hierdie navorsingsprojek **vrywillig** is en dat daar geen druk op my geplaas is om deel te neem nie.
- Ek te eniger tyd aan die navorsingsprojek mag onttrek en dat ek nie op enige wyse daardeur benadeel sal word nie.
- Ek gevra mag word om van die navorsingsprojek te onttrek voordat dit afgehandel is indien die studiedokter of navorser van oordeel is dat dit in my beste belang is, of indien ek nie die ooreengekome navorsingsplan volg nie.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van deelnemer

Ingeligte toestemming vir opneem van onderhoud

.....
Handtekening van getuie

Verklaring deur die navorser

Ek Yolande Smit verklaar dat:

Die deelnemer tyd gehad het om vrae telefonies te rig en ek genoegsame tyd spandeer het om die vrae te beantwoord. Ek is tevrede dat die deelnemer alle aspekte van die navorsing verstaan soos aan haar verduidelik.

- Ek het/het nie 'n tolk gebruik nie.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van navorser

.....
Handtekening van getuie

Verklaring deur die tolk

Ek (naam) verklaar dat:

- Ek die navorser (naam) bygestaan het om die inligting in hierdie dokument in die taal van keuse Engels/Afrikaans of Xhosa aan (naam van deelnemer) te verduidelik.
- Ons hom/haar aangemoedig het om vrae te vra en voldoende tyd gebruik het om dit te beantwoord.
- Ek 'n feitelik korrekte weergawe oorgedra het van wat aan my vertel is.
- Ek tevrede is dat die deelnemer die inhoud van hierdie dokument ten volle verstaan en dat al sy/haar vrae bevredigend beantwoord is.

Geteken te (plek) op (datum) 2014.

.....
Handtekening van tolk

.....
Handtekening van getuie

ADDENDUM N: THEMES USED TO CODE TRANSCRIPTIONS

Main categories	Themes
Knowledge	<ul style="list-style-type: none"> • KNW: Source • KNW: Misperceptions • KNW :Food labels
Factors influencing food purchases	<ul style="list-style-type: none"> • FP: Cost • FP: Convenience/Time • FP: Taste • FP: Knowledge – food labels • FP: FP: Family preference • FP: Wastage • FP: Traditions • FP: Expiry date • FP: Media
Attitude	<ul style="list-style-type: none"> • ATT: Obesity • ATT: Informal vendors • ATT: Unhealthy food • ATT: Tuck shops • ATT: Role of the parent
Practices	<ul style="list-style-type: none"> • PRAC: Vegetables • PRAC: Take aways • PRAC: Take kids to shop
Barriers	<ul style="list-style-type: none"> • BAR: Cost of healthy food • BAR: Cost of unhealthy food • BAR: Peer pressure • BAR: Mixed media messages • BAR: Employment status • BAR: Layout of the supermarket • BAR: Fast foods • BAR: School environment – tuck-shop

ADDENDUM O: HREC APPROVAL LETTER



HEALTH RESEARCH ETHICS COMMITTEE
UNIVERSITY OF THE WESTERN CAPE

Approved with Stipulations New Application

06-Dec-2013
Smit, Yolande Y

CRHS Reference #: S13/02/01

Title: An investigation of the factors influencing food choices of mothers of primary school children of the Metro North Education District of the Western Cape Province, South Africa

Dear Mrs. Yolande Smit,

The New Application received on 30 Oct 2012, was reviewed by members of Health Research Ethics Committee I via Minimal Risk Review procedures on 04-Dec-2013.

Please note the following information about your approved research protocol.

Original Approval Period: 06-Dec-2013 -05-Dec-2014

The stipulations of your status approval are as follows:

Informed consent forms:

Remove under section will you benefit in both consent forms:

All the participants who give their contact number on the provided tear-off slip at the end of the questionnaire will enter into a random 'lottery' for a lucky draw on the value of R200.

Please remember to use your protocol number (S13/02/01) on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or suspend the execution of your research protocol at any time.

After Ethical Clearance:

Please note a template of the progress report is obtainable on www.sun.ac.za/ethics and should be submitted to the Committee before the year has expired.

The Committee will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for external audit.

Translation of the consent document to the language applicable to the study participants should be submitted.

Federal Wide Assurance Number: 00001572

Institutional Review Board (IRB) Number: HUB0000039

The Health Research Ethics Committee complies with the SA 'Noting' Health Act No 61/1993 as it pertains to health research and the United States Code of Federal Regulations Title 45 Part 46. This committee abides by the ethical research principles for research conducted by the Department of Health, the South African Medical Research Council, Guidelines as well as the Guidelines for Ethical Research Principles, Structures and Processes 2004 (Department of Health).

Provincial and City of Cape Town Approval

Please note that for research in a primary or secondary healthcare facility permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Contact persons are Ms Claudette Adams at Western Cape Department of Health (health.as@wcg.gov.za) Tel: +27 21 483 5507 and Dr Helen Visser at City Health (Helena.Visser@cape.gov.za) Tel: +27 21 406 3981. Research that will be conducted at any tertiary academic institution requires approval from the relevant University's Ethics approval is required. BREC/IRB approval will be obtained from these health authorities.

